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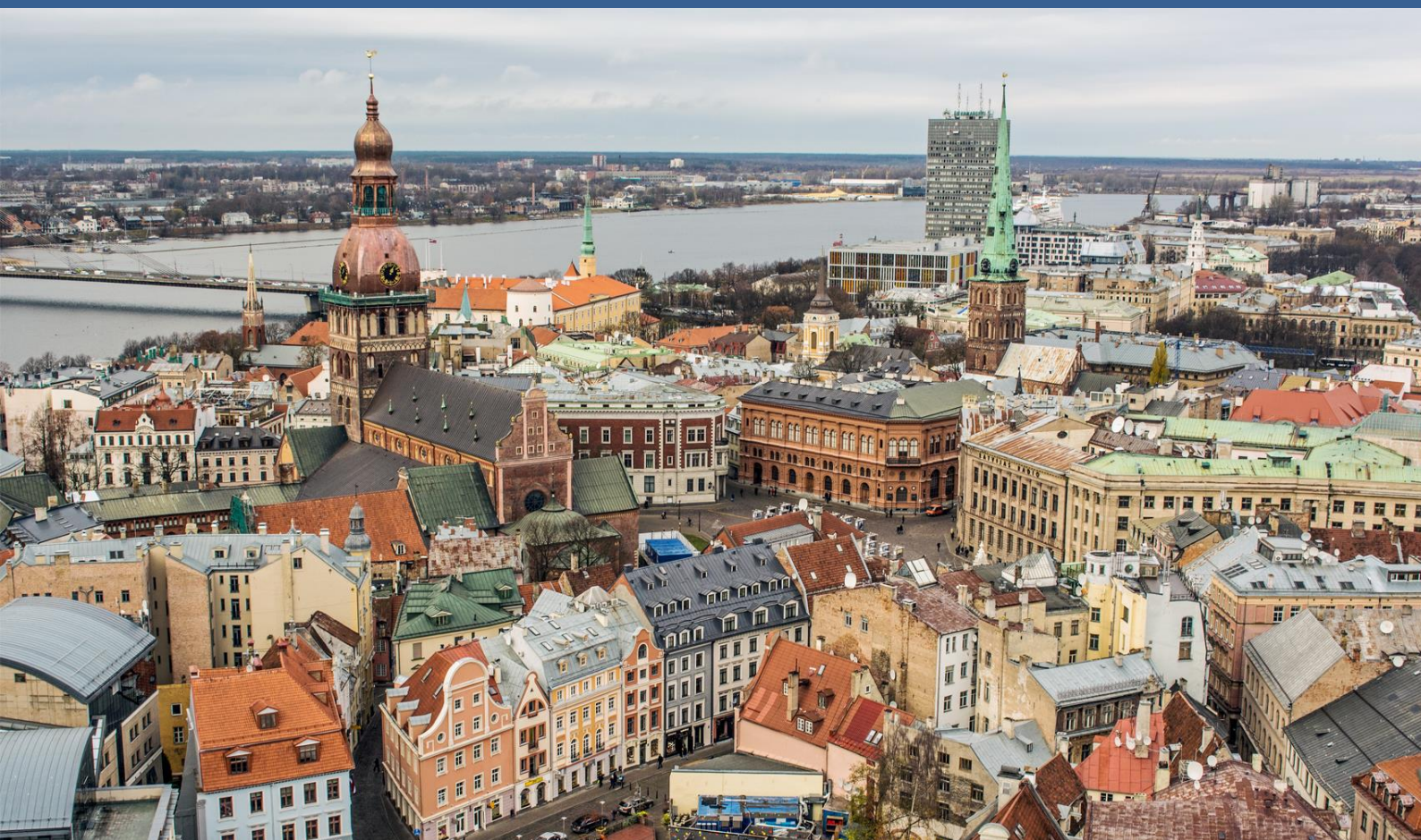
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**Project Management Development – Practice and Perspectives**  
7<sup>th</sup> International Scientific Conference on Project Management in the Baltic Countries

# CONFERENCE PROCEEDINGS



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# Project Management Development – Practice and Perspectives

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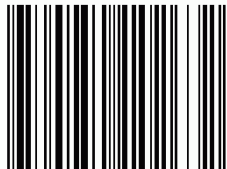
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7<sup>th</sup> International Scientific Conference on Project Management in the Baltic Countries

# CONFERENCE PROCEEDINGS

Conference is organized by the **Research Institute of the Project Management**  
of the Faculty of Business, Management and Economics,  
University of Latvia in cooperation with the **Professional Association of Project Managers**

April 19-20, 2018  
Riga, University of Latvia



**Professional Association of Project Managers**



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## **PREFACE**

### **Professionalization and further development of project management**

Globalization of and the need for constant change in business causes a demand for innovation, and this can be successfully introduced in the form of projects. Today we no longer speak of management of individual projects and related methods and techniques – projects are a form of management and there are project-oriented businesses. Where previously the preferred method was one granting transparent development of individual projects, the recent years have seen project management become the very means of realizing business management strategy.

With the increase of importance of project management in businesses, their demand for professional management of individual projects and project portfolios is on the rise. This has led the managers of businesses and organisations alike to ask several questions: what is the quality of project management in our company/organisation? what internationally recognized project management standards do we apply? do our project managers and teams have corresponding education from internationally recognized professional higher education programmes? are our teams certified? do our project managers and teams receive support suitable for the situation? are we using the best project management models for our type of business? These questions are the subject of the research done by our conference participants. The reports submitted to our conference discuss issues topical to professionalization of project management.

The reports to be presented during the plenary session and three sections of the conference, and which are published in this edition, represent a valuable investment into the further development and professionalization of project management.

On behalf of the conference organizers, I would like to thank all the authors who have contributed to these conference proceedings (7<sup>th</sup> International Scientific Conference on Project Management in the Baltic Countries) and wish them many new ideas and their successful application.

**Prof. (emer.) Dr. oec. Žaneta Ilmete**  
Chairman of the board of the Professional  
Association of Project Managers  
The University of Latvia, Riga



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## **ACQUIREMENT OF IT-PROJECT MANAGEMENT AS AN AGILE PROJECT**

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FH Campus Vienna, Vienna

### **Abstract**

In recent years, the state of innovation in society has radically changed. Words such as mobile phone, laptop and WLAN are now part of the everyday word usage. Due to the progress in innovation, IT-Projects have become much more complex and costly to supervise. In order to keep the overview and to enable the planning of the projects, appropriate management methods have been developed. The IT project management course at the FH Campus Vienna deals with these methods. The present work examines the possibility to view the knowledge acquisition of IT project management itself as a project and to support it using Moodle as a management tool.

Nowadays, teaching content related to project management is a common frontal lecture. Therefore, the focus lies in determining optimization potential in the way IT project management Scrum is taught by using a practical application. Likewise, a suitable product backlog was developed to cover the content of the lecture and a course schedule was defined. Due to this dynamic and flexible teaching method, the learning effect is optimized and rendered efficient.

Interviews were conducted to collect valuable data from experts who have personal experience in successfully transferring knowledge.

During the implementation, it became clear that Moodle offers a great support for documentation and knowledge sharing during the application. It also offers a wide array of rhetorical tools. Therefore, a custom Moodle course was developed for the defined Product Backlog, in order to support teaching and strengthen the lecture content accordingly. While developing the teaching concept, the focus was set on the integration of different rhetorical instruments.

**Key words:** *Scrum, project management, product backlog.*

**JEL code:** M15 (IT-Management)

### **Introduction**

Project management, which originated in 1960, has changed rapidly in the last few years. The invention of the Internet and the revolution in information technology have resulted in a considerable economic change. This importance is also reflected in today's business world. IT projects are constantly gaining in relevance and also complexity and therefore found their way into all industries. Whether it is baker around the corner establishing a digital way of paying or an industrialized gigantic enterprise, in today's economy no one can escape the trending change (Lent, B, 2013).

A particular aspect of increasingly complex software projects, is that the entirety of the scope cannot be defined precisely in its initial phase anymore.

In an article by Philippe Kruchten, published in *ObjektSpektrum*, the following reasons were:

- Software inherently offers almost unlimited flexibility.
- Psychological and organizational constraints make it difficult or impossible to completely, correctly and accurately define a software system based on assumptions (without feedback in the processing cycles).
- The specification languages are often inaccurate.
- Rapidly changing market requirements often require late changes.

(ObjektSpektrum, 2001)

For the appropriate administration and implementation of projects new management methods and especially agile approaches have been developed to cope with the increased





complexity. These agile methodologies are based on a consistent set of rules. This includes the following approaches:

- Individuals and interactions > processes and tools
- Working software > comprehensive documentation
- Customer Collaboration > contract negotiation
- Responding to change > following a plan

This guideline should not mark the aspects listed on the right as "unimportant". Of course, they also have an important role to play in agile approaches, but during the project implementation and application, the methodology should primarily focus on the factors listed on the left (Andresen, J, 2018).

In many literatures, the Scrum method is named as a Best Practice approach, which is also underlined by increasing reputation and rising deployment in today's world of business. For this reason the methodology is ideally suited as the basis of the agile teaching concept in combination with IT project management (Rubin, K, 2012).

### **Empirical methodology of an agile teaching concept**

It is clear how diverse the term IT project management can be defined, regarding problems that can be expected in the implementation and monitoring of a project and above all, the important role Scrum plays in this context. This disclosure forms the basis for understanding the concept of the agile transfer of IT Project Management knowledge

As mentioned above, the content of this thesis investigates the possibilities on how to structure and convey the lecture content of "IT project management" at the FH Campus Vienna as a Scrum process. The goal of the concept is to experience agile culture and methods, rather than learning them. Therefore, the roles that occur in a Scrum process are held by the teacher and the students, with the teacher acting as the product owner and the students taking the positions of the development team. The teacher and the students act exclusively within their respective roles throughout the entirety of the course.

Moodle, which is a widely known platform, shall be used to support the lecture. A specially designed Moodle course shall be used to exchange teaching materials and tasks, as well as for project documentations and performance reviews.

Based on the components of the Scrum methodology, these elements shall be reflected in the teaching method, which will be described in the following paragraphs. The product backlog will be referred to as the "LVA Backlog". The other components of the Scrum model retain their name, but are given the prefix "LVA". For example, the Sprint Review Meeting shall be titled „LVA Sprint Review Meeting“.

The entire preparation of this teaching concept, follows the vision of a memorable conveyance of the relevant teaching content, for "IT project management", to the students. So during the planning and implementation phase, the focus is set on successfully transferring knowledge.

In the preparatory phase of the course, the Product Owner is responsible for maintaining the Moodle course. Consequently, the teaching materials, as well as the "LVA Backlog" must be uploaded in the previously prepared Moodle structure. The "LVA Backlog" consists of user stories that cover the entire content of the course "IT Project Management". The following format is used:



User Story ID:	HM1	Sprint No.:	TBD
Title:	<b>Hybrid / Collaborative Model</b>		
Effort Estimation:	Medium	Priority:	2
Depending on:	LE1		
Necessary for:	SC1		
<b>Description:</b> Description of a mixed model, combining classical approaches with agile approaches and best practices with such			
<b>Done when:</b> 2 students as groups against each other in review meeting: Classical versus hybrid model in cast Study example.  → <b>Including feedback guideline</b>			

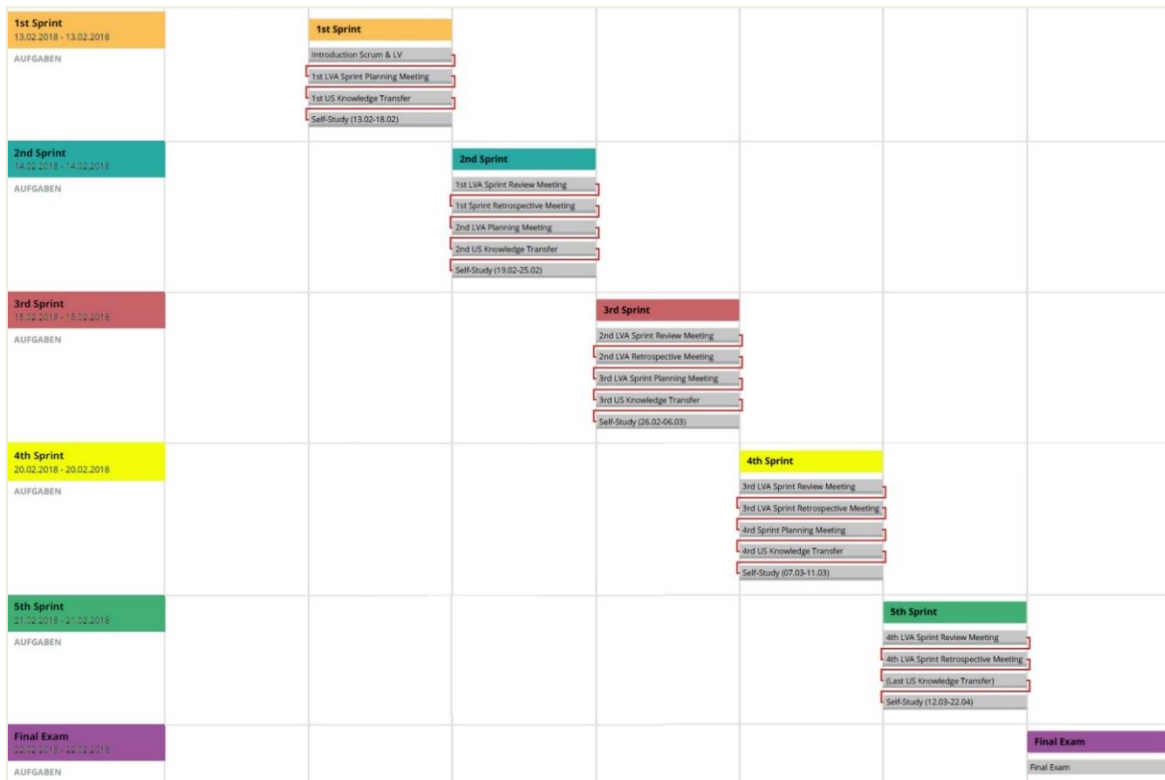
Source: Material of IT-Project Management lecture

**Fig. 1. Example of a User Story**

A still-to-be-defined sentence template shall help precisely word a good user story. Each user story should have an identification number, an approximate estimation of the teaching and learning effort, a dependency relationship and most importantly, if applicable, an acceptance criteria (Wintersteiger, A, 2013).

The degree of detail for each individual user story depends on the visions degree of maturity. The product owner should always keep in mind, that at the beginning of the course the students have different levels of knowledge related to IT project management due to their educational background. Therefore when detailing the user stories he must pay attention that the level of knowledge does not exceed that of the student team. The progress of the students' building knowledge will contribute to further expanding the degree of detail for the rest of the "LVA Backlog" user stories throughout the course (Gloger, B, 2013).

The first teaching unit can be held, once the documents for the course have been entirely prepared by the Product Owner. The basic structure of the course looks like this:



Source: author's construction

**Fig. 2. Agile LVA Structure**

The initial unit deals with introducing the students to the course, informing them on the planned process, and giving them a short overview of the Scrum method.

Once the general conditions of the course are specified for the entire student team, the first “LVA Sprint Planning” Meeting can start. The Product Owner presents the already developed User Stories in printed form to the student team. In a predefined period of time, students have the opportunity to gain an overview of the contents and to prioritize the user stories for themselves for the first “LVA Sprint”. Next the whole team discusses the results and a joint prioritization is agreed upon. At this point the Product Owner has the opportunity to intervene, should he disagree with the prioritization, and redirect the students back on a more suitable path. This would be the case, for example, if a user story is used for the first sprint backlog, which has not yet reached the appropriate level of detail or is dependent on a user story that has not yet been completed.

If the entire team agrees with the decision, it will be documented properly by the Product Owner in the Moodle course. Thus, the progress of the entire course is made transparent to the product owner, as well as the student team.

Ensuing, the Product Owner starts with the knowledge transfer for the selected User Stories and deals with the acceptance criteria of the individual contents. At the end of the lesson, the Product Owner documents, which user stories of the “LVA Sprint Backlog” were dealt with in terms of content and which were leftover due to lack of time.

The students work on individual homework tasks which fulfill the acceptance criteria which have been specified by the Product Owner for each user story respectively. These could be tasks such as reading through specific literature regarding the development of an entire project documentation to a case study.



The following structure of a LVA unit can be repeated as often as needed depending on the time resources available. It starts with an “LVA Sprint Review Meeting”, where the acceptance of the selected User Stories for the previous “LVA Sprint Backlog” take place. The acceptance of the individual user stories is carried out by the product owner, if the defined acceptance criteria has been fulfilled by the entire student team. If the Product Owner approves the results, the user story moves to the so-called “LVA increment”. If the specified acceptance criteria has not been met or missed, the user story is moved back to the “LVA Backlog” and awaits re-editing. At the end of the “LVA Sprint Review Meeting”, the status of the discussed user stories is reflected in the Moodle course and the phase is closed.

As in any well managed project, there is always room and time for improvement. The “LVA Sprint Retrospective Meeting” offers exactly this possibility. The teacher takes the role of the Scrum Master and discusses difficulties in the implementation of the individual user stories, as well as any complications and ambiguities in the realization of the teaching concept together with the student team. The expression of frustration, disappointment or blame should not occur. The focus is on improving the process on a team level to disclose and gain lessons learned.

After that the preparation phase of the next “LVA Sprint Planning Meeting” starts. All user stories that are still in the “LVA backlog” are again made available to the students in printed form by the product owner. Based on the already established knowledge, user stories with unsatisfactory levels of detail may possibly already be worked out into an actionable state. The entire team, including the product owner, is therefore encouraged to analyze and co-design the remaining user stories.

Then the same procedure as in the initial teaching unit shall follow. Each member of the student team makes a personal prioritization of the remaining user stories, which will be discussed in plenary including the product owner, who of course has a veto right again. Once a uniform prioritization has taken place, the resulting “LVA Sprint Backlog” is transparently documented by the Product Owner in the Moodle course and the renewed knowledge transfer to the selected User Stories takes place.

The last LVA unit starts like the previous ones, with an “LVA Sprint Review Meeting” of the last “LVA Sprint”. Once all the “LVA Backlog” user stories have been completed by the entire team and accepted by the Product Owner, they can immediately proceed with the “LVA Sprint Retrospective Meeting”.

Otherwise a last knowledge transfer follows after the “LVA Sprint Review Meeting”, led by the Product Owner to finalize the last declined User Stories.

In any case, the “LVA Retrospective Meeting” concludes the agile knowledge transfer of the course. At this point, the student team has the opportunity to review the entire process again retroactively and to provide suggestions on how to optimize the course. Furthermore, recommendations on how the communication or the lecture content can be improved are voiced. Thus, the Product Owner has a prospect for future students to perfect the execution and obtain better results. Also, the experience can be discussed with external lecturers to get a wider perspective on hidden possibilities.

The entire course will be completed by a final exam at the end of the semester. All contents of the “LVA Increment” will be dealt with again in this review. The entire course is passed if a student achieves a final grad of at least 50%.

### **Student’s opinion on the agile teaching concept**

The course "IT Project Management" is in the fourth semester part of the curriculum "Technical Management" with the specialization "Information Technology" at the FH Campus Vienna. The teaching concept will be implemented for the first time in the summer semester of 2018.



To underline the effectiveness of the teaching concept, seven students of the study program were interviewed in expert interviews regarding their experiences with the agile instruction.

Without exception, the interviewees rated their overall impression of the teaching concept with four or five stars, resulting in an overall rating of 4.2 stars. The participants justified their grandiose evaluation by having the possibility of co-designing the lessons, as well as the resulting increased engagement in the cooperation and communication during the course content. Equally the students appreciate the recurring repetition of already learned teaching content in the "LVA Sprint Review Meetings", as this reduces the learning effort before the exam. Furthermore, the students can better identify with the contents of the individual "Knowledge Transfers", since they decide which topics are worked through.

Nevertheless, the interviewees also stated negative aspects of the teaching concept. Above all, the significantly higher learning effort between two teaching units was mentioned. Through the agile knowledge structure and the relaxed working environment, the students are more willing to engage in a discussion. This leads to high expenditure of time and as a consequence not all selected user stories can be treated. In addition, respondents still perceive the "US Knowledge Transfer" as a frontal lecture, even though the circumstances are different. However, 84% of those interviewed believe that the reverse sides of the agile teaching concept can still be remedied by revising and taking feedback into account.

The direct comparison of the frontal presentation and the agile teaching concept, based on defined viewing aspects, looks as follows:

Table 1

**Agile teaching concept vs. frontal lecture**

<b>viewing aspects</b>	<b>agile teaching concept</b>	<b>frontal lecture</b>
communication, participation	better, more active	bad, more passive
course construction	determined by students	determined by lecturer
repetition of the course contents	currently during the lesson	at the end of the course to compile the exam material
Expenditure outside the course	High overhead, due to ongoing repetitions in each unit	Low expenditure (one-time distance learning)

*Source: author's calculations based on results of expert interviews*

Due to the practical application of the Scrum method as a teaching concept and the recurring repetition of what has already been learned, nearly 84% of students feel their knowledge on the topic has improved significantly using the reformed teaching method compared to a typical frontal lecture. The remaining 16% assess their knowledge as nearly identical.

Apart from the fact that the new teaching concept, is the basis of IT Project Management course content, three quarters of the interviewees can imagine adapting this procedure in other subjects as well.

### **Moodle as a supporting platform for the agile teaching concept**

Today, eLearning is an established and common term. In the earlier days, while computers and cell phones were still in their infancy, books and schools were the only sources of knowledge. Nowadays the internet is rich with information and knowledge is increasing constantly with every minute. This offers unsuspected opportunities in all sectors, including education (Stoecker, D, 2013).

In this context the term "Moodle" is often mentioned, which could be related to the fact that this platform is known as one of the world's largest learning management system in the



field of open-source programs. Moodle regularly extrapolates the following statistics, further underlining this statement:






















## Moodle Statistics

Registered sites	94,632
Countries	230
Courses	15,039,481
Users	128,539,392
Enrolments	535,578,108
Forum posts	262,671,827
Resources	135,503,290
Quiz questions	787,719,901

Source: Moodle Pty Ltd. 2018

Fig. 3. Moodle Statistics

Apart from the enormous range of communities, Moodle additionally offers a wide repertoire of predefined teaching elements to design one's own course. The Moodle course serves as a platform, for the agile teaching concept, to exchange information and submit tasks.

ACTIVITIES		RESOURCES
<input type="radio"/>  Assignment	<input type="radio"/>  Glossary	<input type="radio"/>  Book
<input type="radio"/>  Chat	<input type="radio"/>  Lesson	<input type="radio"/>  File
<input type="radio"/>  Choice	<input type="radio"/>  Quiz	<input type="radio"/>  Folder
<input type="radio"/>  Database	<input type="radio"/>  SCORM package	<input type="radio"/>  IMS content package
<input type="radio"/>  External tool	<input type="radio"/>  Survey	<input type="radio"/>  Label
<input type="radio"/>  Feedback	<input type="radio"/>  Wiki	<input type="radio"/>  Page
<input type="radio"/>  Forum	<input type="radio"/>  Workshop	<input type="radio"/>  URL

Source: Moodle Pty Ltd. 2018

Fig. 4. Moodle Activities

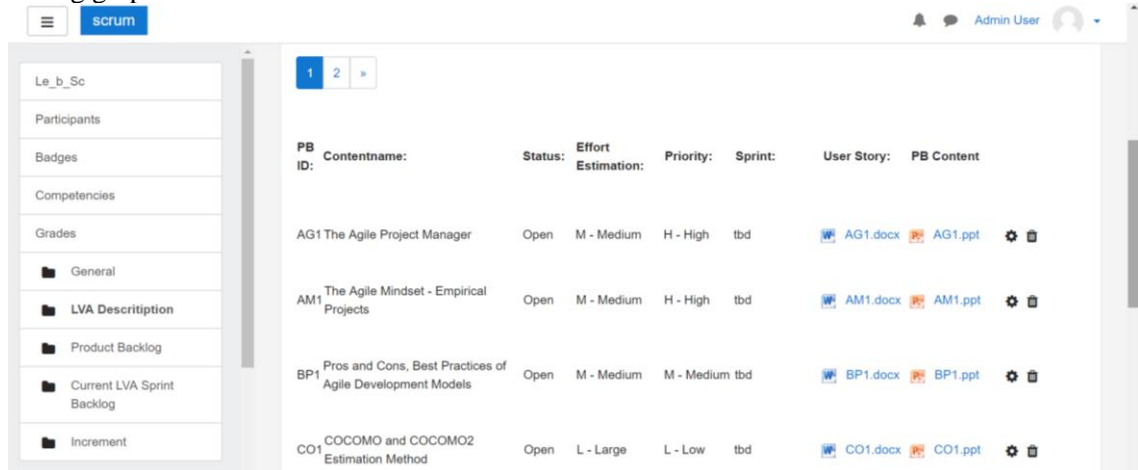
The course consists of the following four main chapters:

- LVA Description
- LVA Backlog
- Current LVA Sprint Backlog
- Sprint Review Tasks

The chapter "LVA Description" comprised the LVA structure, which was already illustrated in the chapter "Empirical methodology of an agile teaching concept". Also the explanation of the course modalities are available in this chapter.



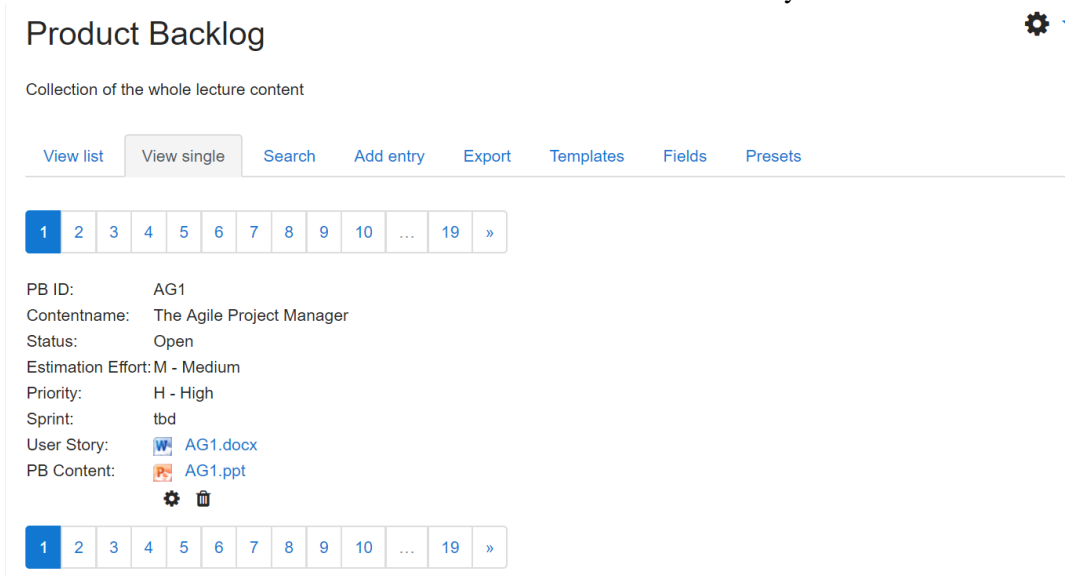
The "Database" activity is perfect for a clear representation of the “LVA Backlog”, which is why it is used in the chapter "Product Backlog". All user stories are listed as depicted in the following graphic:



Source: author's construction

**Fig. 5. Moodle Course Product Backlog Overview**

For each user story the product backlog ID, content name, status of editing, effort estimation, priority, sprint assignment, description of the user story and lecture material, are displayed. The detailed interface allows the users to view the user stories consecutively:



Source: author's construction

**Fig. 6. Moodle Course Product Backlog Detailed View**

The status progress and sprint unit, in which the user stories are handled, must be maintained by the product owner after every planning or review iteration.. Thus, the sprint planning is reflected in the list and individual interface. Moodle does not offer a suitable activity showcasing which user stories were selected to be dealt with in the following sprint. . However, Moodle allows the integration of external tools. Such as Survio was integrated into Moodle, to survey the students on their personal preference when which user story should be dealt with.



The Product Owner can then use this evaluation as a basis for discussion for the Sprint planning in plenary.

In the final chapter "Sprint Review Tasks" the acceptance tasks of all user stories are listed. At the beginning of the course this chapter is empty. Over the time of the course, the product owner will reveal the acceptance tasks to the students, for the already discussed user stories.

In the "LVA Review Meeting", the results of the tasks are discussed together and the product owner decides whether the associated user stories have been accepted or not. The status of the individual user stories will be updated by the Product Owner, in the chapter "Product Backlog", after every "LVA Review Meeting".

### **Implications/Conclusio**

IT project management is a complex concept for administrating and executing projects, scoping a vision, which is hard to define. Management methods are also evolving due to the constantly changing economy. The agile teaching concept is more than ideal, as it can continuously adapt to an ever changing environment. Due to the possibilities of individuals co-design the teaching units, the lessons are based flexible and open to discussion for continuous improvement. At the beginning of each lesson, the teaching content of the previous LVA Sprints will be taken off, continuously confronting the students with the material. Thus, the learning effort is limited to a minimum immediately before the final exam.

Through the popular Moodle platform, the teaching concept and course progress can be recorded in an appropriate manner and made available for all concerned parties. Thus the "LVA Backlog" as well as the individual "LVA Sprint Backlogs" are always visible. Likewise, work assignments, teaching materials and documents as well as important due dates can be exchanged via Moodle in an uncomplicated and structured way.

The expert interviews also revealed potential for optimization, making it clear that the transfer of knowledge in the agile teaching concept is still similar to a frontal lecture. Accordingly, the preparation and imparting of the teaching content could be done by the students themselves. The research work of this thesis could also serve as a basis for establishing the teaching concept in other courses as well.

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## **WHY HYBRID PROJECTS FAIL - DEVELOPMENT OF A RETROSPECTIVE ASSESSMENT METHOD FOR HYBRID PROJECTS**

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### **Abstract**

The project business in the IT sector is constantly growing and the budgets of IT departments are getting bigger and bigger, even though according to studies only 16,2% of all projects are successful. (Standish Group, 2015) There is a trend that tries to mix the classic and agile project methods. The target of this approach is to apply best practices of those two methods (e.g. faster “time to market” and flexibility) while trying to keep the organizational structures and -processes (Komus et al., 2015). A difficulty is that there is no exact definition of how a hybrid project should be executed. Another problem is that the role of project manager does not exist in the agile approach.

The other challenge is that projects are normally measured based on key performance indicators. But there is no clear definition on what is a key performance indicator and what is not. Therefore, projects are not comparable with the use of key performance indicators. (Parmenter 2015). Do to this lack of measuring; project risks are increasing threatening project success (Csiszarik-Kocsir et al 2017)

According to studies there are eight reasons why projects fail and by means of expert interviews those eight reasons have been confirmed and the list was expanded, including four additional reasons (Coolman A. 2016).

This paper presents a review system for hybrid projects with which it is possible to check if projects have failed due to known obstacles. In addition, two possible definition models for hybrid projects are presented in detail, as well as the possible results of each individual phase (start, execution and close-down) that every project passes through. By means of literature research and interviews, stumbling blocks were identified as to why projects could fail. Based on these stumbling blocks, questions were developed for a retrospective assessment method. Based on these questions, an expert can evaluate whether the failure of the project coincides with one of the identified obstacles/reasons. In an excurs, possible key figures for hybrid projects are presented.

**Key words:** *hybrid project, projects fail, key performance indicators,*

**JEL code:** H43 (project evaluation)

### **Introduction**

The 2015 Chaos Report found that only 16.2 percent of all projects could be considered successful. An additional 52.7 percent has come to an end, but at least one of the aspects was outside the magic triangle (quality, time and cost). The remaining projects were never completed and stopped in between. (Standish Group, 2015)

When the study published by the German Project Management Association (GPM) is used, 39 percent of the projects in the surveyed companies are executed with using a hybrid approach. In 25 percent of the projects, a situational approach is selected (classic, agile or hybrid). If one assumes that the 25 percent can be split linearly, one recognizes that more than 47 percent of the projects in the surveyed companies are handled with a hybrid approach. (Komus et al., 2015)



The challenge of hybrid projects is that they try to do the splits between two mythologies. On the one side, there are the existing structures and organizations of a company, on the other side one tries to use the advantages of the agile approach. For this purpose, an attempt by Mr. Habermann was published, in which the interaction between an agile approach and a classical approach in a laboratory simulation was recreated. (Habermann 2013) The result of this simulation containing 26 teams and showed, that a hybrid approach was superior to full agile or full classical project approaches. Based on this conclusion, it seems that hybrid models can become more common in the future.

## **Definition of different project approaches**

### **Generic definition of a project**

In our day and age, the term project is used more and more often. Almost every activity or venture is now defined as a project. For projects, there is a very clear definition. It is a project when most of the below points is fulfilled: (Patzak et al., 2014)

- New
- Goal-oriented
- Demarcated
- Complex
- Dynamic
- Interdisciplinary

At the beginning of a project the fundamental decision must be made as to which approach one wishes to use in the project. There is a classic, agile or hybrid approach to choose from. Below a few forms of approaches are presented

### **Classic approach**

The best-known methods in the classical approach are the waterfall model and the V-model. Both models were created in the 1950s and are still used repeatedly. (Timmingner et al., 2016)

There has also been a definition of standards in project management. World widely known standards are the PMI (Project Management Institute), the IPMA (International Project Management Association) and PRINCE2 (Axelos).

### **Agile approach**

In 2001 there was a meeting of various representatives of the agile movement. During the meeting, they agreed on a catalog of 12 principles and four values, that must be adhered to. (Beedle et al., 2015)

The best known of the agile project management methods is SCRUM. During the article, the SCRUM model of Gloger is discussed, which differs from the conventional SCRUM method. The first difference is that the roles are not just the following: (Gloger 2011)

- SCRUM master
- SCRUM team
- product owner

But also, the roles:



- customer
- user
- manger

The customer is the person of the client, this is usually a manager who commissions the project. The user is the user who works directly with the solution. The manager is the resource manager in charge of the SCRUM team members and releases the resources, furthermore he / she supports the SCRUM master if there are problems outside of the team. The second difference is the number of artefacts. (Gloger 2011)

The agile standard approach has the following artifacts:

- vision
- product backlog
- sprint backlog
- impediment backlog
- product increment

With Gloger's adapted approach, the artifacts have been extended to the following:

- sprint goal
- selected product backlog
- tasks
- release plan

The sprint goal defines the goal of the sprint. The Selected Product Backlog is a list of all functions that are to be implemented as part of a sprint. In the tasks, the individual steps are defined, which should be implemented during a sprint. The Release Plan is an information element and not a planning tool in the classical sense. It indicates when which backlog item should be delivered. (Gloger 2011)

### **Hybrid approach**

There is no definition or standard that can be used comparatively for the hybrid approach. The most important feature that must be present is that elements from the agile and classical method are used. The relationship between the approaches to each other does not matter. Helpful in defining which approach should be the main method is the Timinger and Seel model. Based on this, a decision graphic was created with which it can be ascertained whether a project should be carried out in a more classical or agile way. (Timminger et al., 2016)

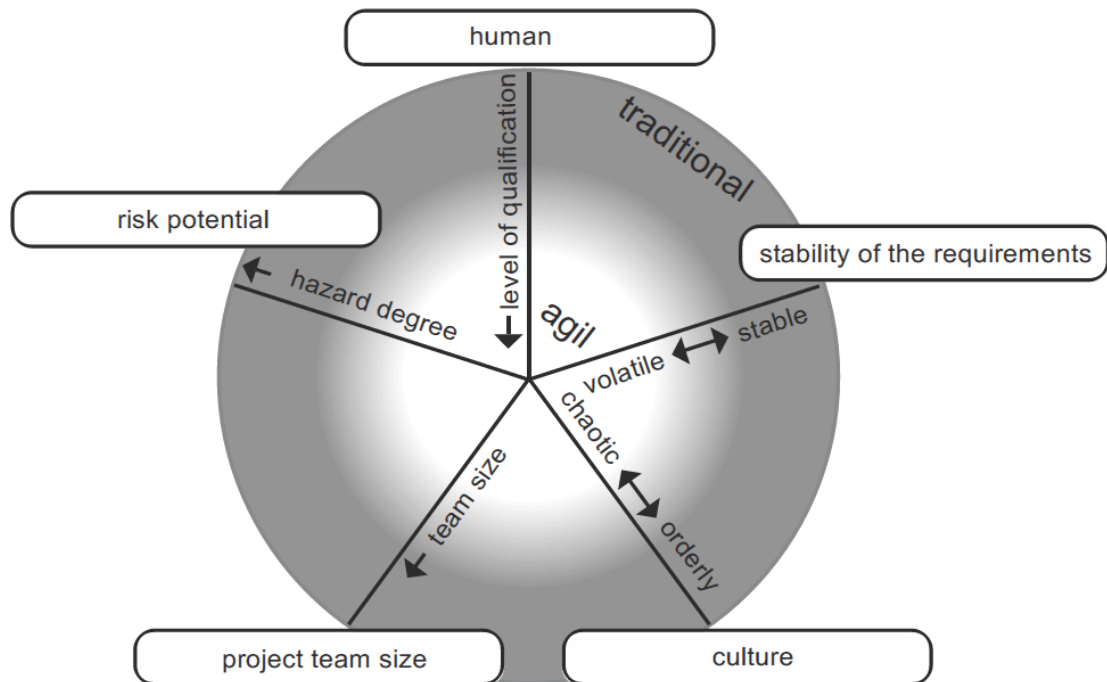


Figure 1. *Agile vs. classic approach according to Timminger*

A possible project case presented in the hybrid context could be: The projects starts with an agile approach. This is because the scope of the project could not be defined exactly at the beginning. With the progress of the project, the scope can only be defined more precisely and it is possible to switch to a classic model later. (Timminger et al., 2016)

### Phases of a project

No matter which approach is followed in a project. A project always goes through the same three phases: start, execution and conclude.

The focus of the start phase is the project setup. During this phase, the following documents may arise: (Patzak et al., 2014)

- project application
- project environment analysis
- project definition and contract (including objectives and not objectives)
- profitability calculation
- project calculation

During the implementation phase, the actual implementation of the project takes place. Here are the following documents: (Patzak et al., 2014)

- work breakdown structure
- object structure concept
- work package definition
- GANTT chart
- milestone plan
- controlling
- status reports



- user acceptance test

When completing a project, most of the following documents are used: (Patzak et al., 2014)

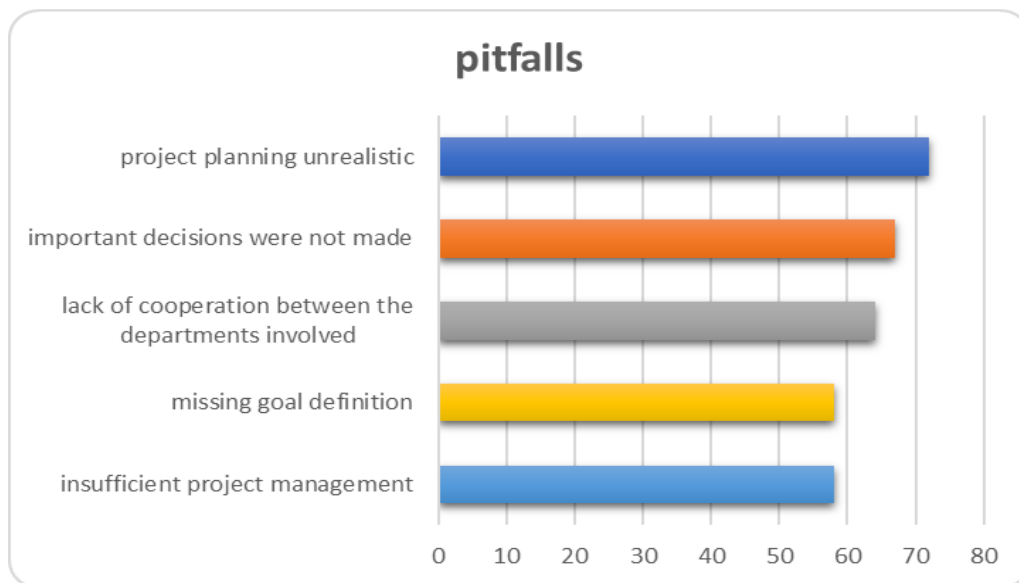
- lessons learned
- after project calculation
- open issues
- final report

### **Pitfalls**

Based on an understanding on project approaches and phases a literature research is used to identify most common project challenges.

#### **Reasons for failure (literature)**

According to the study by Hays, about 15 percent of all projects fail. As the top five reasons why projects fail, the following were named: (Schabel 2015)



*Figure 2: Pitfalls according to Hays study*

Ashley Coolman has named the following top five reasons: (Coolman A. 2016).

- poor communication:  
This point aims at the missing or incorrect communication between essential stakeholders.
- underestimate deadlines:  
Incorrect or non-existent risk management or project planning may cause problems or situations not to be properly addressed or the necessary buffers not considered.
- inability to recognize the essential details:  
In most cases, project managers have the big picture of the project in mind, but they like to forget the detail points that can have a major impact on the project.



- not helpful teams and technologies that just make everything more complicated: Often you must work with teams and the technical support or software that you get. In some situations, this can lead to problems that significantly endanger a project.
- Inattentive management  
 Even if a project is going well, there should never be a situation where the project is no longer being reviewed by the project manager or project manager. As a result, you run the risk of not recognizing changes in the project in time and losing a successful project

The reasons for the other points are summarized as follows:

Phase	Pitfalls according to study	Pitfalls summary
<b>Start</b>	Inattentive management	Inadequate project management
	Insufficient project management	
	Poor communication	Side by side instead of together
	Lack of cooperation between the departments involved	
	not helpful teams and technologies that just make everything more complicated	Wrong team composition or software in the project
	Important decisions were not made	Decisions are postponed
	Missing goal definition	No clear goals defined
<b>Execution</b>	Underestimate deadlines	Unrealistic and wrong planning
	Project planning unrealistic	
	Inattentive management	Inadequate project management
	Insufficient project management	
	Inability to recognize the essential details	Project details are ignored
	Important decisions were not made	Decisions are postponed
<b>Conclude</b>	none	none

Figure 3: Pitfalls according to literature

### Reasons for failure (expert interviews)

The main question of this research is, about collecting pitfalls and challenges of especially hybrid models. Therefore, industry experts, managing hybrid IT projects have been interviewed according the following focal points:

- 1) Do the collected pitfalls of classic projects also count in hybrid projects?
- 2) Which additional or special pitfalls can be named in hybrid project approaches?

The interview was conducted with several experts. All experts have a working experience of at least 15 years in project management and are thus able to provide competent and representative information. In the interviews, the following stumbling blocks were uncovered:

The following results can be mentioned:



- 1) All pitfalls detailed in the literature research are also very present in hybrid project approaches. Even more, due to high interaction in agile teams, the pitfalls are even more sensible and need more care by project managers.
- 2) In addition to this, the bellows additional pitfalls have been mentioned and crosschecked by all experts:

Phase	Pitfalls
<b>Start</b>	Schedule time reserves for financial reserves
<b>Execution</b>	Communication in the project
	Goals and non-goals are softened
	Insufficient qualifications in the team
<b>Conclude</b>	none

Figure 4: Pitfalls according to expert interviews

### Conclusions, proposals, recommendations

The following tables present the most common challenges in hybrid projects and therefore can be used as an retrospective assessment method of failed projects. An expert who deals with a hybrid IT project can use these lists to examine critical project areas in a targeted manner and to identify weaknesses in the project. The third column (possible source of knowledge) also helps an appraiser with the analysis.

#### Phase Start

Pitfall	Question for detection	possible source of knowledge
<b>Inadequate project management</b>	Was a plausibility check made for the theoretical scope of the project? Can the project theoretically be based on time and with the known scope?	charts / graphs
	Was the project leader included in the agile part of the implementation and, if so, in what role?	charts / graphs
<b>Side by side instead of together</b>	We have created an understanding of the project among all stakeholders?	minutes and contract
<b>Wrong team composition or software in the project</b>	Has it been agreed who will take over what role in the implementation and how the tasks will be distributed?	minutes and charts / graphs
<b>Schedule time reserves for financial reserves</b>	Has the project plan been created and compared with the business case or checked to see if the result matches?	contract and charts / graphs
<b>Decisions are postponed</b>	Has it been defined which agile approach is used?	charts / graphs
<b>No clear goals defined</b>	Did the meetings in which the first rough product backlog is defined took place? Prerequisite for the plausibility check.	minutes and charts / graphs



### Phase Execution

<b>Pitfall</b>	<b>Question for detection</b>	<b>possible source of knowledge</b>
<b>Unrealistic and wrong planning</b>	Was the planning adapted to the actual circumstances during the project?	reports and charts / graphs
<b>Inadequate project management</b>	Was Controlling set up and executed at a reasonable interval?	reports
<b>Goals and non-goals are softened</b>	Was there a change management and was the impact of changes on the whole project considered?	reports and charts / graphs
<b>Project details are ignored</b>	Did the meetings and ceremonies that match the approach take place?	minutes and charts / graphs
	Have all participants fulfilled their tasks and roles?	minutes and reports
<b>Insufficient qualifications in the team</b>	Do all project participants have the necessary qualifications for their position?	CV and project structure
<b>Communication in the project</b>	Did the meetings and ceremonies that match the approach take place?	minutes and charts / graphs
<b>Decisions are postponed</b>	What was the speed at the escalation of problems by the responsible person? Has there been a timely response and solutions or has it been postponed?	minutes and reports

### Phase Conclude

In the conclude phase no stumbling blocks were named by the experts or in the literature. However, in the opinion of the author, it is important that a project also has an end, as this is often forgotten in practice. For this reason, the author includes the following stumbling blocks in the method.

<b>Pitfall</b>	<b>Question for detection</b>	<b>possible source of knowledge</b>
<b>Project not closed</b>	Were all project participants sorted out of the project?	minutes and lessons learned
<b>Help desk cannot support the solution</b>	Did an orderly transfer from the project team to the support take place?	minutes and documentation

With the three tables above, the assessment system for hybrid projects has been completed.





## Conclusions

Realizing, that hybrid approaches increase the amount of pitfalls, as well as the sensibility of them, raise the question, whether hybrid models are really worth doing. Do the positive effects in flexibility and speed outweigh the negative effects of pitfalls? This question could be part of future research.

Furthermore, a weakness of this research is the low amount of experts interviewed. A quantitative interview with a high number of project managers, done internationally would be needed to really gain reliability.

Therefore, this research shall be seen as a starting point in a rapidly developing field of project management approaches.

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## **WOMEN AS PROJECT MANAGERS**

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### **Abstract**

On the one hand, we are currently experiencing a dynamic increase in the demand for project management. It involves the need of an organization to react to impulses to changes resulting from the imperative of improving efficiency and maintaining a competitive advantage. On the other hand, there is a tendency to increase the participation of women in the management (also in project management) and thus break the historically masculine domination.

These issues are still not fully recognized, and it is not just the question of who is better and why (gender aspect) but it is also the question of the factors that determine the successful implementation of women's projects. Additionally, the pursuit of development and optimization in their potential in the context of the growing companies' needs to be flexible and the ability to meet the challenges that the project managers face.

The research problem of this article can be summarized into a synthetic question: what is the role and participation of women in project management (in the context of their participation in the management of organizations in Poland) and what factors are important for the potential of women in managing projects now and in the future?

The aim of the article is to examine how the opportunities of the increasing participation of women in management, (especially in project management) have been used in the recent years in Poland, as well as to identify the factors which determine their effectiveness so far and in the future.

The article is based on a review of the subject matter and statistical data. It will be supported by the survey results. The results of this study will be used to illustrate the answers to the detailed questions connected with the research problem.

**Key words:** *project management, female project manager, project management efficiency, challenges for the project leader*

**JEL code:** L2, M1

### **Introduction**

It is an undeniable fact that for many centuries the role division between men and women has been sustainably marked. Except for some single cases, it did not allow the latter to participate in the social and economic life events and limited their business, public organizations and social management activities. Not until the gender equality was sanctioned in late 19<sup>th</sup> century, did women get broader access to participate in public life and management activities, taking the positions of supervisor/manager. This allowed women to access those activity fields that had so far been dominated by men. At the same time, circumstances to break through this male domination had arisen. In the middle of 1950's, women gained an increased participation in management, however, as shown by statistical data (WEF, 2016) from different countries and continents, these processes progress at different rates, various barriers to equalize participation ratio of men and women appear. This process is still ongoing, the difference between men and women participation on managerial positions is slowly diminishing. The result of the global research (Zenger J.H. & Folkman, J., 2017) conducted in 2017 by Zenger Folkman company (with participation of 7 000 managers) confirms, however, that disproportion between women and men percentage on all management levels still exists (management board: 78% men, 22% women; senior management: 67% men and 33% women; medium management and line management: 60% men and 40% women). According to the listing published in *Women in Business 2017* prepared by Grant Thornton (Grant Thornton, 2017), Poland can talk big about the high (40%) participation of women on top positions, while in other EU countries it is 25%. As demonstrated by the analysis of the changes in the last years, in many EU countries, the



number of women in management board positions goes down instead of growing (Dźwigoł-Barosz M., 2016). The occurrence of leaving high positions in the company and starting own business (*careerpreneur*) increases. Women seek opportunities for self-realization outside of the business, especially when it appeared to be a “men’s world” throughout, dominated by dogmatism, arrogance, competitiveness, liking for hierarchy, power display, etc.

#### **Role of women in organization management**

Increased participation of women in management bodies gave rise to the analysis of women’s role, identification of the results in management participation and attempts to find out whether they are better managers, whether they manage better than men. As shown by many (diverse in terms of methodology) studies of the topic, there is no unequivocal confirmation of these kinds of hypotheses/assumptions, e.g. G.N. Powell (Powell, G.N., 20013) states, that there are no reasons to deem that only women or only men can become good managers, discerning at the same time, that women have tendencies to manage democratically and men – autocratically. Results of this study rather emphasize that contemporary management that requires setting up ambitious goals/tasks and ensuring conditions essential for their efficient and effective attainment opens space for both sexes to operate (Wiecka A., 2014). Organizations who are not interested in taking advantage of this diversity, consciously deprive themselves of chances to improve effectiveness and strengthen their competitiveness. On the other hand, however, the increased participation of women in management should not be treated as simple antidote to its so far revealed ailments/”maladies.”

It is hard to fail to note that management styles of women and men may differ substantially, within the frames of ambivalent conceptualization of subject literature (Lisowska E., 2009) the male/traditional and female/modern people management styles have been defined (although the characteristics of these styles don’t have to be directly and permanently related to gender).

Facts presented in *Doktryna Ateny* (Gerzema J. & D’Antonio M., 2014) prove that female values are gaining importance since the world is already tired with the leadership model based on traditionally male features. Today, in order to conduct business, other values are necessary than those originating from the male work culture. In “the times affected by chronic unease” more presence of values /features defined as female is expected in the business and social life. It is being emphasized, that generalization of features and values traditionally attributed to women becomes the determinant of development, “operational system” of the 21<sup>st</sup> century. It is justified by women’s participation in the human population (in Poland, this indicator is at about 51,6%, it is also expressed by feminization ratio – in 2006 it was 106,5) (GUS, 2007). Of course, it is not about “annihilating the men’s world,” the goal here is to build a symbiosis of male and female features and thus, enhance the chances to function and grow in a more balanced reality.

Engaging women in management roles as a result of taking up professional work and conducting business has become an inevitable process when facing challenges related to further growth and effectiveness improvement in the economic and social field. This is fostered by the increasing self-awareness of women about the potential they have at their disposal. Tapping into this potential is served by mechanisms leading to overcoming of all sorts of social inequalities (which are still some kind of historical burden) and building adequate conditions to initiate/maintain professional activity of women (who respect, among others, women’s right to fulfill the mission of motherhood or women’s determined voice for work and work balance).

Angel Gurria, general secretary of the Organisation for Economic Co-operation and Development (OECD) states that “women are the most unused resource in the world’s economy” (Wittenberg-Cox A. & Maitland A., 2010). Researchers from Booz & Company (Women and the Economics of Equality, 2013) estimated, that in the current decade the labor market will be strengthened by about a billion women. This number equals the population size of China and India, i.e. countries that have in recent years turned into economic powers owing to their populations. Countries, enterprises working in economic conditions that are based on



knowledge, using the potential of women, strive to take advantage of their educational achievements, especially, that they are very well educated, e.g. in Poland in 2015 among women active on labor market, 42,3% had higher education (GUS, 2016).

In fact, it is not right to underestimate women as market participants (consumers), hence it is important to grant them part in important financial decisions related to efficient market strategies. It has been confirmed by empirical studies that companies who have women as management board members attain better results than those who have no female participation in management. And so, per the McKinsey report, in companies where at least 3 women were part of the management, the organizations achieved return on capital rate higher by 41% and operational results higher by 56%. This women representation of 30% is considered to be a „critical mass” that makes the efficiency of decision making of both men and women much higher (Dąbrowska E., 2014).

The above presented reasoning (albeit not complete) confirms the importance of granting women the right participation in the management. It is crucial due to the possibility to deepen the synergies coming from competency diversity, introduction of new features and values which enriches the management style and increases its quality. In doing so, it provides chances to enhance effectiveness of actions, to enhance competitiveness and innovativeness. In other words, it supports the fulfillment of the immanent needs of every organization on the market realizing the concept of balanced growth.

In the context of what most of the companies struggle with in terms of practical management, for example, the existence of a host of stereotypes and biases (glass ceiling/glass labyrinth, sticky floor, glass cliff, velvet nest, glass escalator) result in women having to wait for promotion in average 3 years and 8 months longer (Mizera M., 2008). Paying women less for working in the same function as men is an obvious discrimination. E.g. in United Kingdom, the difference noted by the Institute for Fiscal Studies is currently 18% (Closing the gender..., 2016), and in Poland, the salary gap between men and women is in average 19%, and on higher paid jobs it reaches 25% (Kobiety zarabiają w Polsce..., 2012) and unjustified a priori lack of trust in female manager by both women and men (Słowik J., 2017) – it is becoming increasingly important to take actions in order to utilize the natural potential of women on the management field (leadership).

### **Women participation in project management**

Traditional management focused on harmonizing simple and repeatable tasks, facing rapid technological changes, globalization growth and increasing competitiveness giving way to complex and unrepeatable management (Kisielnicki J., 2011), carried out in a turbulent environment, i.e. project management that is a foundation for changes, increased adaptability of the company enabling continued activities and development. The acceleration of change rate creating the need to design and implement next enterprises is the direct condition for intensive proliferation of project management. H. Kerzner (Kerzner H., 2005) states that the organizations of the 21st century will face a real revolution that will require deeper understanding of the project management matter and what outcomes resulting from „project approach” of the management will be possible to achieve considering the synergy effect. Without disputing the meaning, the development of methodologies/approaches and tools related to them will have for project management and evolution toward project based organization (incl: *Aigle*, *Agilean* and others), it is emphasized, that aiming at successful realization of the growing number of new projects, organizations will be forced to involve more and more people – project managers. Additionally, they will also be interested in gathering experience to be utilized in order to improve the effectiveness of project management, shortening their lead-time etc. It is not easy to precisely define the management perspectives, as claimed by Adrian Lammi (President of PMI Northeast Ohio), the future of project management may look in the following way (Kerzner H., 2005): „owing to the skills required from the project managers, project management of the 21<sup>st</sup> century will become a unique field of knowledge.(...) While scope, time, cost and quality will remain very important, they will be accompanied by other determinants of success: proper



human resource management and communication management. Project managers will be rewarded for their reasoning skills, wielding influence, inspiring and negotiating and in doing so, they will have to surpass the country and culture boundaries.” The above cited statement indicates that for the future of project management, the role of manager and requirement related to it will be particularly important, especially behavioral skills (wielding influence, communication, empathy, etc.)

What then, based on this perspective, is the interest and participation of women as project managers?

While women on project manager positions are still not an every-day reality, they do not evoke a feeling of astonishment as it was the case some decades prior. Already in 1995 A. Gale and S. Cartwright noted in their research (Henderson S. L. & Stackman W. R. & Koh Y. Ch., 2013) that women are not sufficiently represented as project managers, exactly as it was in case of women on higher managerial positions. They emphasized, however, that it applies to businesses that are traditionally „male,” e.g. construction. Also the research of G. M. Mulenburg, from early 2000 confirmed, that project management still remained a male dominated profession (Nauhauser Ch., 2007) despite a significant increase of “critical mass” of women entering the project organizations/environments. The maintained disproportion between men and women in project manager role is confirmed by the gender structure of PMI association (PMI, 2008), where in 2008 30% of the members were women and 70% men. The ratio differs slightly depending on business or region, e.g. in North America in 2008 women participation was at 42% and in 2011 (PMI, 2011) a drop to 36% was noted which shows the maintained masculinization in the project management area. Another research (Carter N.M. & Silva C., 2010) exploring the subject of female project managers shows that the expectations (assumptions) about increased women parity as project leaders have not come true. The chances to level the proportions between traditionally male managers and women have not either been utilized. On the contrary, some regression as reaction to uncertainty and ambivalence in today’s organizations is observed, which causes them to derive from familiar cultural beliefs/patterns in reaction to dynamic surrounding.

Another indication of maintained marginalization of women in project management is assigning female managers less ambitious, less complex and lower risk projects which often translates into less team members and adequately lower budgets for these projects (Henderson S. L. & Stackman W. R., 2010). A hard evidence here is maintaining the difference in compensation between men and women involved in project management as shown by data from PMI study (PMI, 2017) conducted in 2016. It involved 37 countries, in 36 of which the compensation of men is higher than that of women<sup>1</sup> (the lowest difference of about 1.5% noted in France). In Poland, with the average annual salary of project management employee at 159 013 PLN, the difference between compensation of men and women is 22.4%<sup>2</sup> (no data related exclusively to project managers available). Summarizing the above, it can be claimed, that despite the changes aiming at increased involvement of women in project management, their situation in this field is not different than the one of women in management position in general. Also here, the earlier identified barriers related to women participation in management are visible.

Coming back to the project management matter, i.e. to the process where the project manager who is planning and monitoring activities comprising a project, also allocates proper resources in order to achieve goal/goals as planned and meeting the defined budget. Project manager is a key factor here conditioning an effective project realization and in order to do that, he/she should fulfill the following roles (Stolarska A., 2016): coordinator, communication responsible, inspiring/motivating individual, change leader, negotiator, entrepreneur and possess

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<sup>1</sup> No data for Saudi Arabia provided.

<sup>2</sup> Calculated based on PMI data from 2017



appropriate competences. Research conducted on this scope allowed to indicate, that particularly important are the following (Urbańska-Musioł A., 2010):

- ability to communicate,
- ability to solve problems,
- ability to make decisions,
- leadership skills,
- ability to build/motivate team,
- negotiating skills,
- flexibility

According to T. Kopczyński (Kopczyński T., 2014) the modern project management should be viewed as a transition from the traditional management referencing to the approach based on predictability and classical planning to agile management where adaptability, creativity and speed of action focused on customer needs (external and internal) are accentuated. This results in changes to roles and competences of project manager. Especially, the social competences are of importance, more demanded are leaders with such attributes as: inspiring/motivating, building relations (including trust), positive reinforcement/energy awakening, encouraging to self-development, showing empathy etc. Thus, preferred is a management style with so called female features and values as dominating.

Due to its specifics, project management generates particular opportunities for women who want to „prove themselves” in management, i.e. fulfilling a managerial role (among others, considering a time-limited project life perspective, possibility to select the area of management resulting from the type/scope of project and difficulty scale related to it). This creates a chance to use the natural potential of women coming from the well-developed abilities to communicate, organize team work based on partnership, „innate” abilities to simultaneously manage several aspects/perspectives (multitasking), integrated thinking in the dynamically changing reality. Seeing through the prism of demands formulated for effective project management, a clear convergence appears between the features defined as female management style, i.e. those naturally displayed by women (even though, as emphasized in literature of the subject, it is not denied that this style can be adopted by men and that women can use so called male management style based mainly on competition, goal attainment and analytical thinking).

### **Methodology and research**

In the light of such a situation outline it has been judged as legitimate, within the poll study, to verify the situation related to the role and participation of women in project management on the background of their participation in organization management in Poland. Considering the inevitable need to increase the rate of their participation for the sake of management future (ensure proper representation) and quick rate of project management popularization, it has been attempted to identify conditions that are crucial for utilization of the potential related to women in the role of project management as well as conditions important to employ the potential in the future, i.e. for efficient and effective realization of the different projects and project portfolio management in the organization.

In order to obtain answers to the asked questions, quantitative study has been conducted<sup>3</sup> (as a poll), internet based survey has been utilized (the choice of the technique was mostly based on being able to include higher number of respondents as well as increased anonymity). The questionnaire included characteristics of the respondents and their subjective opinions about the woman’s role as project manager and conditions in this field. The authors applied a deliberate choice of research group, inviting to the study only women on project manager positions. Included in the study were 104 women from all over Poland (however, the number of answering the given questions is different). It should be considered that due to the small research sample the study does not meet the condition of representativeness.

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<sup>3</sup> The survey study was conducted on the cusp of 2017/2018 using <https://researchonline.pl/5409>



Participating in the survey were 71.15% of women in the age range 30 to 49, 23.08% of women in the age range 25 to 29 and 5.77% of women in the age range 50 to 65. As far as the education of the studied women is concerned, most of them had higher education (87.44%). Only 1.78% respondents had secondary education. The prevalent group included women with education in economy and humanistic science (33.04% and 32.08% respectively), technical education (23.9%). A small group of respondents indicated the field of biology, chemistry, psychology and tourism. Most of the respondents had a postgraduate/MBA education in the field of project management (45.3%) and certificates and completed training (23.08%) in project management, among others IPMA B, IPMA D, P3O, PMP, P3O, PRINCE 2F, PSM I. On the other hand, 22.22% of women did not indicate any special education in the field of program management. The most numerous group was comprised of respondents, who declared experience in project management 2 to 5 years long (49.05%), 19.61% of women declared experience of 6 to 9 years and 16.67% – 10 years and more. 14.71% women indicated their experience under 1 year. Most of the women on program management positions have been involved in business organizations in big enterprise<sup>4</sup> (61.86%). A significantly smaller group was comprised of women involved in average size enterprises (16.49%), small enterprises (11.34%) and micro enterprises (10.31%). Much less women were involved in public/social organizations. Taking into consideration this category, the respondents indicated mainly state administration (26.67%), local government organization (13.33%) and social organization (8.89%). The respondents represented mainly services (48.53%) and production (15.51%). Trade gave 8.75% of indications and transportation – 3.9% of indications. Among other businesses IT, telecommunication, educational sector, culture and administration were mentioned. The number of projects executed to date- as project manager, was distributed among the respondents as follows: a big number of women executed more than 10 projects (37.78%), then 33.33% of women executed 1 to 3 projects, 22.22% of women realized 4 to 6 projects and only 6.67% of women realized 7 to 10 projects. While the survey was being run, 26.97% of respondents were involved in 2 projects simultaneously and 22.47% were working on 1 project, whereas 19.1% of women were working on 3 projects, 15.73% of women were managing more than 4 projects. The average budget per one project accomplished by one respondent (where n=87) fluctuated in the range above 50 000 PLN (66.67%). 10.34% of women indicated the range of up to 10 000 PLN. Relatively big group was comprised of women who executed projects lasting in average for up to 1 year (54.55%) and projects lasting 2-3 years (40.94%). By far smallest group is comprised by women carrying out projects lasting longer than 3 years (4.51%). According the respondents' opinions, most of the organizations have no room for project portfolio management (46.51%). 53.49% of the respondents indicated that the organization manages project portfolio: in 46 cases it covers 10 projects, and in 11 organizations from 1 to 3 projects, in other 10 organizations it is 4 to 6 projects and in 5 organizations 7 to 10 projects are covered. Women participating in the study indicated, that they mainly execute project for organization's own needs (57.95%). On the other hand, 42.05% of women carried out projects for external customers. For a definite majority of respondents, project management was a result of their deliberate choice (64.71%), led by, among others, need for increased duties, willingness to prove oneself, proving that „it is possible” to complete with success and also the vocation and activity based on project management. Additionally, the deliberate choice of the respondents was related to the possibility to gain experience and knowledge in project management which allowed them to conduct projects in an unassisted way, growing in this field and taking responsibility for the project. The women participating in the survey underlined that project management is a profession requiring wide competences, offering numerous challenges

<sup>4</sup> In Poland, the characteristics of enterprises include: a micro enterprise (up to 10 employees), a small enterprise (10-50 employees), a medium enterprise (50-250 employees), a large enterprise (up to 250 employees).



on managerial level. Additionally, they accentuated, that their deliberate choice of project management was due to independency, feeling good working in uncertainty, full accountability for the tasks and full decisiveness in terms of investor selection, whereas 32.94% of women pointed out, that project management in their case was a pure coincidence caused by liquidation of their job and transfer to project manager position, proposal within the internal recruitment process, recognition of potential and opportunity to grow as project manager as well as an opportunity to prove themselves owing to skills in project and people.

Most of the surveyed women declared continued project management in the future, increasing the scope of realized projects by other fields/areas (29.65%) or concentration on the specifics in a defined project category (12.21%). Then, part of the respondents treated program management as an transient stage of their professional development (9.3%) and pursue of promotion to a traditional (managerial) management position (6.4%). 2.33% of women admitted that they wanted to cease, i.e. exit the project management area due to retirement and starting being a trainer on this subject, planning own business, low compensation and “not fitting” in the project management specialization.

The following were the particular motivators for the surveyed women (n=84) to start professional career:

- possibility of acting and self-realization (28.1%),
- financial independence (26.67%),
- fulfilling ambitions (16.19%),
- relative freedom of acting/decision making (15.71%),
- influencing people/relations (11.43%).

Among other factors the women indicated their self-awareness they were brought up with and possibility of continuous development.

Taking into account the determinants of the project manager position, the women (n=84) indicated, among others:

- possibility of acting and self-realization (30%),
- relative freedom of acting/decision making (24%),
- influencing people/relations (17%),
- fulfilling ambitions (14.5%).

While searching for answers about the conditions related to program management carried out by women, the respondents were asked the following question: *which of the management skills are most useful as assessed by female project manager?* The question was answered by 83 respondents (n=83) who out of the list of 18 skills indicated maximum 5. It is worth mentioning that all skills put on the list were taken into account which shows the complexity of project management and need for diversified spectrum of skills necessary to manage this matter. Most indications related to interpersonal skills (communication, solving conflicts, etc.) – 17.4%, another one appeared to be setting priorities of the realized tasks – 0.5%. However, not less important were typical skills related to decision making/planning, organizing, controlling. The least indicated were skills connected with cost management, time management and discipline which may confirm that need for such skills is relatively lower even when the project management function sets priority for cost, time, productivity and quality.

Taking into account the personal features that are particularly crucial for a project manager, (at n=83 and the possibility to select 6 answers as a maximum), the respondents indicated:

- communication skills, i.e. ability to make new contacts, openness etc., in other words, features deciding about the interpersonal skills (12.1%),
- qualifications to think in cause and effect manner, which on one hand means the ability to analyze and identify rationale and justification of choices, and on the other hand to design and anticipate the action conditions – 9.8%,





- ability to manage difficult unusual situations and adaptability to the dynamic changes of the conditions, flexibility – 8.4%.

In the next question the respondents expressed their opinion about determinants ensuring effectiveness (success) in project management (n=83).

The highest number of indications (23.6%) was related to the skill of integrating tasks within the team, coordinating them in the frame of holistic view of the problem being resolved. On the second place the experience in project management was identified (22.3%). Knowledge related to building relations with people, about their behaviors and attitudes was ranked as important (19.2%), and finally, the special knowledge in a given field related to the project was indicated (7%). The management style allowing participation of employees in finding solutions in relation to a given project is of great importance (17.4%). Within other factors it was pointed out that understanding customer needs and ensuring contacts with them during project execution pays an important role.

In order to identify the conditions impacting effectiveness, an attempt was made to obtain an answer to the following question: *what do the project managers strive to avoid?* The respondents' answers (n=83) indicate that they strive to avoid:

- domineeringness (31%),
- superficiality (22%),
- stiffness of applied procedures (19%),
- rush (12.5%).

At the same time, they do not concentrate on avoiding high-handedness in decision making while assigning tasks or on not taking risks. The above may attest that they may reach for „hard” management tools if it is required to attain goals.

If it comes to the barriers resulting from the immanent „female” features, the participants replying to the next question (n=72) admitted, that these are:

- lacking faith in oneself (20.7%),
- feeling uncertain about their knowledge (16.4%),
- lacking courage to formulate and express own thoughts, needs (16.4%).

It is worth noting that the same number of respondents (16.4%) no longer sees impact of these factors. Barriers that were not listed in the survey for selection and got brought up by the respondents are: expressing higher requirements toward women (they should have more detailed knowledge, they should not make mistakes, etc.), but at the same time, the management is burden with excessive emotionality.

It appears that in order to ensure effectiveness in project management, especially important for female project managers (n=72) are activities leading to overcoming stereotypes, including, among others:

- different standards of evaluation and compensation of men and women (24%),
- typical barriers, like glass ceiling, sticky floor etc., presenting the reluctance to women as managers (17.4 %),
- maintaining selection methods that respect male domination on project manager position (15.6%),

Other barriers, that respondents indicated as ones they need to overcome while managing projects are: giving them so called soft, sometimes low budget projects and relatively frequent appealing to the „hierarchical” instead of competency based criterion of project manager selection process.

Relating to the conditions that should be met in the future, the respondents (n=72), expressed the opinion, that in project management of the future, the special challenges are connected with:

- ability to remote team management – resulting from ITC technology advancement and home office popularization (20%),



- adjustability to the specifics of new generation, i.e. the generation functioning in an online environment (19.0 %),
- increasing complexity of the projects, forcing hybrid teams organizations (13.8%),
- increasing need to educate the shareholders (8.5%).

Thus, in order to meet these challenges and ensure effective project management, it seems necessary to develop/strengthen certain competences. Women who are project managers (n=80) have the following perception of the priorities focused on strengthening:

- ability of congeneric problem solving (14.7%),
- perfecting work in the team (11.3%),
- creativity release (10.2%),
- training ability of convincing and persuasion (8.7%),
- application of critical thinking (7.8%),
- widen active listening skills (6.4%).

The key task for project managers of the future of increasing needs for potential to manage enterprises being the reaction to impulses for change in the reality of ever increasing change rate, will be the optimization of work ability of the project teams in order to maintain their availability to undertake tasks/projects that are crucial for continued competitiveness of the companies. The respondents share a symptomatic conviction that not taking actions in this direction is unaffordable. Women (n=81), as project managers intend to implement these tasks as follows:

- keeping appropriate acceptance level for failures and by building ability to learn from mistakes (28.5%); consent to mistakes is inevitable in order to keep ability to act (not getting into frustration). At the same time the point is, that in time of turbulent changes it is important to be able to learn quickly new ways of acting that help to keep relatively lasting competitive advantage,
- taking actions in leading to increased involvement and creativity of the team members (20.2%), tightening the cooperation in the team (15.8%), but also to monitor development of the different team members (12.3%). In doing so, it is important to strive for balance between stiff procedures/implemented standards and freedom of acting (16,3%) and caring for maintaining work-life balance (6,0%).

## **Conclusions and proposals.**

In the light of the presented literature studies it is accentuated that the representation of women in managing social-economical organizations be increased as a determinant of their further growth and effectiveness enhancement as well as our civilization development.

However, the statistics, data contained in the reports reflecting the actual situation show the existence of clear disproportion between involvement of men and women in the management and identify inhibiting effect of numerous barriers (both of exogenous and endogenous nature).

Similar situation exists in the project management area. On one hand, project manager function is for women a unique opportunity to “prove oneself,” gain managerial experience. It also gives the possibility to use (in the context of requirements set forth for project management) the natural potential of women coming from the features and values preferred by them (including social competences). On the other hand, the practice constantly confirms the appearance of masculinization in this field and resulting tendency to marginalize women in project management.

The survey study carried out by the Authors concerning the situation of women in project manager function in Poland:

- seems to confirm, that women are properly prepared to professionally fulfill the function of project manager. The motivators determining them to undertake this role are



the possibility to act and self-realization as well as a relative freedom of acting. Most of them have deliberately chosen this function and intend to continue to work in it in the future (specializing in a certain type of projects or widening and diversifying their scope). At the same time, about 6% of them treat the current position as a stage in striving to attain a higher managerial position.

- Allows to consider the following features as particularly useful in project management: communication skills, ability to cause-and-effect thinking and adaptability. At the same time, they indicated that cost, time and quality management skills are here of lesser importance (which so far have been considered as key in project management).

- Respondents admit, that holding managerial positions they strive to restrain from domineeringness, stiff perception of procedures and exercising time pressure, i.e. factors that play relatively big role in the male project management style. However, at the same time they admit, that their project management was relatively highly influenced by: lack of faith/sense of uncertainty, lack of courage. They also note that in this area most of the stereotypes related to women in management/business can be found.

- The survey shows that the respondents have the awareness of the changes and challenges the project management is facing, including: increasing complexity of the projects and need for their congeneric resolution, perfecting of the team work and creativity release among people. They also see the importance of convincing and persuasion, critical thinking and active listening. They realize that the technical advancement will force the ability of remote management of the team, that it will be necessary to get used to the habit of generation „functioning online” and that more time will need to be devoted to contacts and education of the stakeholders.

- The survey participants confirmed that they realize the key role of the future project manager will be to maintain the organization’s ability to undertake certain enterprises/projects and optimization of the potential for the work of project teams (in the reality of the ever growing need for change). They will strive to implement this optimization by: developing fast learning skills (also on mistakes), acceptance of failures, crating conditions to release creativity of the team members by looking for balance between free acting and procedures/standards and also, on the individual level, offering the team members growth opportunities and allowing for life and work balance.

The conclusions resulting from the problem analysis and conducted survey study are the base to show direction for further research on the subject. Certainly, it would be necessary to widen the subject scope, i.e. include in the study male project managers, contractors/members of the project teams and present their opinions in relation to the placed questions. What needs to be further explored is the casus of relatively low participation of women on managerial positions and in project management, special attention and focus should be given to the alternative acting methods (i.e. legal solutions, for example, implementing quota versus actions focused on self-awareness of women). The issue of convergence of the current project management with the features and values resulting from behaviors and attitudes of women should be deeper analyzed. Also, the problem of initiating certain actions for optimizing project potential is still poorly researched, against the background of conditions for efficient human resource management clear recommendations for practitioners are necessary.

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## **LEADERSHIP'S VALUE IN PROJECT MANAGEMENT**

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### **Abstract**

This paper aims to deepen the knowledge of context, which are based on the fundamental concepts, both related to the project itself and to the discipline of Project Management; the technical / methodological / specialist knowledge, which are generally used for the management of a project and which have always constituted its fundamental core; and finally, behavioural knowledge, which concerns the so-called "soft skills", that a Project Manager must possess in order to manage a project successfully, taking into account also the aspects of personal and rational behaviour. Of course, in order to identify the success and failure drivers of a project, the paper will be focused on the importance of "Leadership" in the Project Management system, defined as the mastery and the systematic use of skills, to allow group of people achieve their goals. The paper will analyse the action of "conviction", as a result of the ability of the leader to communicate, interact, motivate, engage in a mission and manage their interpersonal relationships, taking into account the objectives to be followed, the people on which to exercise their influence and the context in which they are operating. Finally, personal, relational, strategic, creative and systemic thinking skills will be deepened, in order to identify an effective leadership system, able to expand the skills and capabilities of a Project Manager Leader, with the goal of increasing the possibilities of a project success.

**Key words:** *Project Management, Leadership, Soft Skill, Motivation, Strategic thinking.*

**JEL code:** O22

### **Introduction**

This paper aims to identify and provide a thorough and comprehensive study that integrate both the theme of Project Management and leadership, both theoretical and practical, in order to identify the success factors but also failure, which can help the end user, towards the correct application of this discipline and the appropriate use of the tools provided.

Starting from the most common and known definition of "Project Management" defined by the Project Management Institute (PMI) as "the application of knowledge, professional and personal skills, methods, techniques and tools aimed at carrying out a project, in order to meet the requirements". Being Project Management a discipline which refers to all company activities, it is generally carried out by a high qualified person, defined as Project Manager, able to carry out analysis and plans to properly reach all agreed company objectives. A fundamental characteristic of all projects is the progressive processing, since the development takes place in general through successive incremental "interactions". It's fundamental for the Project Manager to develop personal skills and competences in the discipline to allow: unambiguous identification (and accountability) of the different bodies and people involved in the project, an elaboration of the operational plan, a definition of the necessary resources; a constant and timely survey of the progress achieved during construction, an assessment of the deviations, in order to intervene in time with appropriate corrective actions (re-planning to finish), ensuring communication (internal and external), ensuring correct reporting to stakeholders of project results.

### **The ambition to become a Project Manager**

In recent years, the growth of interest in the discipline of Project Management, the establishment of specific courses and, even more, the constant request of this professional figure by companies, has consecutively increased the ambition of young professionals to become a Project Manager. This figure is now considered a "must have" for companies, driven also by



information technology and the need to dedicate specific human resources to project management. However, becoming a Project Manager, has several implications that are certainly not only positive. Surely this role offers a degree of professional autonomy and a very high degree of personal satisfaction, but to successfully face all potential threats as one of the most relevant aspects to consider in this figure is its "Leadership". Being able to share successes or feel responsible for a failure are skills that imply a high degree of leadership. Each person has his very own leadership style and it is not even possible to outline the traits and characteristics of "the leader" and therefore the "perfect" project manager, as their personal skills and characteristics become part of their temperament and thinking styles.

Despite this, it is possible to synthesize four main styles of situational leadership according to two parameters, which have been identified by other scholars as Situational Leadership.

Table 1

**Situational Leadership**

HAS THE KNOW HOW	WANTS TO DO IT	APPROPRIATE LEADERSHIP STYLE
NO	NO	DIRECTIVE
NO	YES	CONSULTATIVE
YES	NO	PARTECIPATIVE
YES	YES	DELEGATING

*Source: situational leadership framework*

While considering the schematic nature of these styles, it is obviously not so simple to be able to choose the most appropriate style and apply it in the individual real cases. While interacting with the resources, it's necessary to take into account personal temperament, trying to adapt one's behavior and habits, depending on the needs of the team to be managed. It will be more difficult to apply the Situational Leadership for those Project Managers who, for example, have a personality that is not inclined to relationships or emotions, since they will not be able to show their attention and appreciation for the work of their collaborators, and vice versa. According to Will Schutz, "by analyzing the interactions between people, it is possible to identify three fundamental behavioral tendencies: inclusion, control, affection. For each one on them, it is possible both to express (from us towards others) and desire to receive (from others towards us) in different degrees and depending on our personality and situation". It is therefore essential that the Project Manager considers not only the skills and competences of their team, but also their relative attitudes, so as to be able to better manage both the resources that have a greatest desire for autonomy (through task delegation), and the resources that need more attention, trust and appreciation, to better engage every one of them towards the final goal.

Therefore, to better understand how to apply the appropriate leadership to the context we are immersed in, we should refer to a study by Kouzes and Posner based on leadership actions, which outlines the common characteristics of a "good" leader - vision, involvement, perseverance - to have a clear vision of the goal to be achieved, how to involve the team in the project activities to reach the goal and persevering to achieve all objectives.

From their study, we can derive the following 5 golden rules that can guide a leader towards excellence:

- Continuously improve processes (look for new opportunities, experiment and accept risks);
- Inspire for a common vision (have a vision of the future, recruit new volunteers);



- Putting others in a position to contribute (fostering collaboration, strengthening team capacity);
- Trace the way (be an example, plan even the smallest wins);
- Encourage (recognize individual contribution, celebrate successes).

### **The efficient communication of a leader**

Another fundamental aspect to consider when we talk about leadership is the language. Leaders tend to use the term "us" to properly involve their team towards a common goal, as it is clear that the "win" is only possible together. True leaders rarely use the expression "I", if not to blame some failings or errors of management or "defend" their resources from any external attacks, as they do not lay the blame on their employees, but protect them as a "good family father to his son who is wrong" would do. This way, the leader not only gets more confidence from the resources, now feeling part of a team, but will also deliver expected outcomes properly. However, just as a "good family father" would do, he should not become too flexible and permissive to generate excessive lightness from the resources: even here the right attitude is a perfect balance between the two behaviors, that is to be comprehensive and protective towards their resources in external situations, but also equally authoritative and able to recall their employees if incurring in any mistake.

Beyond language, a small but enormous aspect not to neglect is the tone that is used in the assignment of tasks and responsibilities, in expressing appreciation, in giving tasks and in making any call. The way in which a concept is expressed is often more important than the content of the message itself. Another fundamental aspect that a "good" leader must consider is his own paradigm and preconception about others: this should be avoided until objectively proven. Negative perception brings negative attitude and behaviors, while high expectations can deliver success through people empowerment and accountability.

Surely the application of all these actions and behaviors is not immediate in the real life, especially because it's complex to perfectly frame the profile of a person. This, determines the consecutive inadequacy of a correct approach, therefore empathy plays a substantial role, which often determines a "leader profile" from a "headline profile".

Thus as defined by Welsh, Migone and Eagle, "Perceiving an action - and understanding its meaning - is equivalent to simulating it internally. This allows the observer to use his own resources to penetrate the other's world through a modeling process that has the connotations of a non-conscious, automatic and paralinguistic mechanism of motor simulation. [...] When I see someone expressing a certain emotion with his own face and this perception leads me to understand the emotional meaning of that expression, I do not achieve this understanding necessarily or exclusively thanks to an argument by analogy. The emotion of the other is constituted by the observer and understood thanks to a simulation mechanism that produces in the observer a body state shared with the actor of that expression. It is precisely the sharing of the same body state between observer and observed to allow this direct form of understanding, which we could define as empathetic".

This is the ability to embody other people's feelings, on the basis of understanding their emotional signals, taking their subjective perspective and sharing their feelings (Bonino, 1994), which determines the consecutive distinction between a successful leader and an egocentric and authoritarian one. As previously analyzed, also in this case an excessive imbalance towards an empathetic profile: this will identify the coordinator as a good person, but not as a leader the team can count on. It is therefore essential to mix empathy with energy, i.e. the ability of the leader to penetrate within the various personalities, to shake and ignite the enthusiasm of the team creating a propensity to listen and follow their leader. There are many studies talking about the substantial differences between a leader and a boss. Among the various scholars who have analyzed these issues in detail, the "fundamentals" that best express these differences, have been identified by Ferrarelli and are shown in the following table:



Table 2

**Boss VS Leader**

<b>BOSS</b>	<b>LEADER</b>
An insecure boss plays on fear	The Leader transpires confidence and enthusiasm
A megalomaniac leader says "I"	The Leader says "WE"
An "old fashion" boss focuses only on mistakes and finds the culprit	The Leader helps collaborators find solutions to their mistakes
An insecure boss is afraid of "good ones"	The Leader doesn't boycott talent, rather he leads it
An "old style" boss does not celebrate as reaching the target "is part of the job"	The Leader knows that celebrating means creating cohesion and alliance
A haughty leader decides all by himself	The Leader promotes teamwork and involves everyone in the decision-making process
A stubborn leader focuses on "being right"	The leader on "doing the right thing"
A petty boss takes all merit and blames others if it goes wrong	The Leader knows that honesty and integrity are absolutely essential to success
An uncertain leader controls everything	The Leader gives trust to collaborators to take free initiative
A boss knows "HOW TO DO"	The Leader SHOW how to do it
A leader says "WHAT TO DO"	The Leader is more interested in asking and listening
A leader hides his insecurity with superiority and arrogance	The leader knows the thin line between being confident and being arrogant
A boss does not celebrate to avoid excessive enthusiasm	The Leader knows that the recognition pushes people to give their best
A weak leader never admits a mistake (it is a weakness)	The Leader admits his own missteps (it is "real strength")
A miserable boss treats employees just as workers	The leader takes care of his staff's problems and helps equilibrate work/life balance
A petty leader "uses" his collaborators	The Leader knows that his collaborators are the key to his success
An boss says "YOU GO"	The Leader says "WE GO"

*Source: Authors' personal interpretation*

To fully understand these substantial differences between the two profiles and be able to put these behaviors and ideologies into practice, it is certainly not simple. Trying to follow these tips and commit to achieve own personal affirmation with empathy, energy and passion, is surely the right path to follow in order to become a "proper" leader, able to achieve all set goals and establish collaboration and mutual respect with his team: the key factor for the success or failure of every single project.

**Leadership: how to become credible and trustworthy manager**

Have an emotional intelligence is essential for all those who want to become credible and trustworthy managers.

*Emotional intelligence*

Emotional intelligence consists in the ability to remain motivated despite frustration, to control impulses and delay gratifications, maintaining lucidity by modulating moods (self-management), but it also implies the ability to effectively manage relationships with others (empathy).

The four basic skills of an emotionally intelligent manager are:

- Self-awareness: being in tune with own emotions and be aware of both strengths and weaknesses;
- Self-management: having self-control, transparency, adaptability, initiative, optimism and always want to improve these traits;
- Social awareness: being empathic, grasping key relationships, being prone to customer needs;





- Relationship management: inspire, influence, develop, foster change, manage conflicts and unite the team.

Daniel Goleman dealt with the theme of leadership styles, mixing this subject with “emotional intelligence”, and finding six other typical traits:

- Visionary: moves others towards the realization of a shared dream;
- Trainer: helps others to identify their qualities, weaknesses and to develop;
- Affiliatory: enhances people and feelings, placing emphasis on their emotional needs;
- Democratic: ask for suggestions from the team to decide the direction to be taken;
- Timer: firmly pushes people to high levels of performance to achieve the goal;
- Authoritarian: strictly controls others.

Each style has its strengths and weaknesses depending on the situation in which it is immersed: for example, a "trainer" style has little success in an unmotivated team with little initiative.

For everyone, however, the goal must be to increase emotional resonance with people, that is, to make them feel positively energized through the relationship created.

#### *Credibility and trust*

To gain trust and foster therefore well motivated resources, a leader must be credible: he must show that not only has the right, but especially the qualifications to guide and direct others to their objective.

Trust comes from the feeling of having a sort of resemblance with the leader, from the understand that he fully gets the needs of the whole team and is able to meet them, from the notice of his integrity and willingness of reaching not only the personal, but especially the common goals.

#### **The characteristics of a “good leader”**

When it comes to Project Management, the "less technical" aspects are often overlooked. And yet, these aspects are actually the key factors to develop a trait that is fundamental for a successful Project Manager: the leadership.

A leader knows how to properly manage relationships with people outside the team, removing any communication obstacle, and knows how to create opportunities for each member, acting as a role model even in the hardest challenges.

"Leadership is the art of making others want to do what the Leader is convinced should be done."

To avoid misbehaviors, it is essential to have and transmit to others a clear vision and the exact mission of the team. The leadership style strictly depends on the personality of the leader, so there are hypothetically infinite styles.

Moreover, the behavior of each individual is linked to his satisfaction, needs and interests so the Project Manager has to distribute tasks in harmony with the temperament of each member of the team, to get the most from each of them.

In the same way each team member has a certain degree of autonomy when it comes to decision making: well-matched resources with different “thinking styles” but able to make the team flexible, turns to be essential to create collaboration and avoid stoppers that could mine the whole project.

Last, but not least, another important aspect for a leader is the Decision Making. A really effective decision is made up by only two aspects: its validity both in qualitative terms (i.e. technological) and quantitative terms (i.e. for its cost), and its degree of acceptance by those who will be affected by the decision (i.e. its effect on the morale of the team).



### **Leadership: how to become a successful project manager**

For a leading project manager, it is essential to know how to communicate and how to apply effective communication: the content of the message and the relationship between PM and interlocutor.

The relation can actually be "complementary" (relationship of subordination or great familiarity) or "symmetric" (equal). The second type is more unstable by definition, unbalanced towards one or the other depending on the moment.

The problem arises when the PM addresses an interlocutor with who does not match the style applied or when there is a misunderstanding: another important consideration to make is that information and meaning are not the same thing. This because the true meaning of a communication is given by the recipient while responsibility to properly deliver it is on who transmits: only understanding the point of view of others can make it effective.

It is possible to predict the interlocutor degree of acceptance by understanding how he processes the information. Depending on the preferred sensory channel, three modes are possible: visual, auditory, emotional. Therefore it is useful to get in tune with the other, paying attention also to the body language, the tone of the voice, the symbolic language and to the intercultural differences.

The rules to follow are simple: communicate, check if the goal has been achieved and, if not, change the approach until the desired effect is achieved.

### **Interpersonal influence**

Leadership is undeniably a process that tends, even if in the most neutral sense of the term, to influence others: the greater the ability to persuade, the greater will be the results. In order to be able to influence others it is fundamental to know how to exploit the mechanisms of the six basic psychological categories of behavior:

- Consistency: when someone makes a decision, he tends to keep it even when conditions change;
- Reciprocity: when someone expects from a relation benefits that are proportional to the commitment given;
- Social emulation: adhering to the models of behavior and belief established by the group;
- Conformism: suffering the influence coming from the group in order to comply with its expectations;
- Appreciation: the natural tendency to do pleasant things and stay with a person we like;
- Hoarding: acquiring an asset or taking an action convinced that we will have no further opportunity to do so.

Each request will be more likely to be supported if reasonable motivation is provided. Possessing the ability to influence others means having "power" over them.

French, Raven and Rubin identify six possible modes of action to influence others, which involve the use of as many "powers":

- Rewarding: to have prizes and promotions to give;
- Coercive: to be able to inflict penalties or punishments;
- Legitimated: being in a high hierarchical position;
- Referential: to be emulated by the team;
- Experiential: being expert on the activity inherent to the project;
- Informational: holds vital information.

### **Conclusion**

Someone perceived as a "good" person, not always is a good worker. In the same way a good boss may not be considered a "leader". While it can be fine for an "average" employee that manage other people, it becomes essential and fundamental for a Project Manager.

He has to deal with many resources, often from different teams, to properly deliver a project: leadership is the art of making others want to do what the leader is convinced should be done to reach the goal.



How to be sure to be a leader PM?

As Ferrarelli and Goleman have said, there are many tactics and implications to consider when choosing the communication style and the approach to use within the teams involved in a project.

Finding the right one is possible only making an attempt with different styles, due to the diverse inclinations of the human nature.

Above all, it is important to keep in mind a simple line of thought: communicate, check and adapt your style until the final aim is achieved.

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## **HOW SHOULD WE HANDLE THE RISKS IN PROJECTS? – ACCORDING TO THE OPINION OF HUNGARIAN SMES’**

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SUPPORTED THROUGH THE NEW NATIONAL EXCELLENCE PROGRAM OF THE MINISTRY OF HUMAN CAPACITIES

### **Abstract**

Projects are key players in modern economies, the main promoters of economic growth. All successful investments are the results of one or more projects, so it is very important that the projects are managed successfully. Risk management is a major part of project management. Risk is an event usually with a negative effect, so it has to be calculated and prepared to handle it, otherwise the risk will be a threat or a problem.

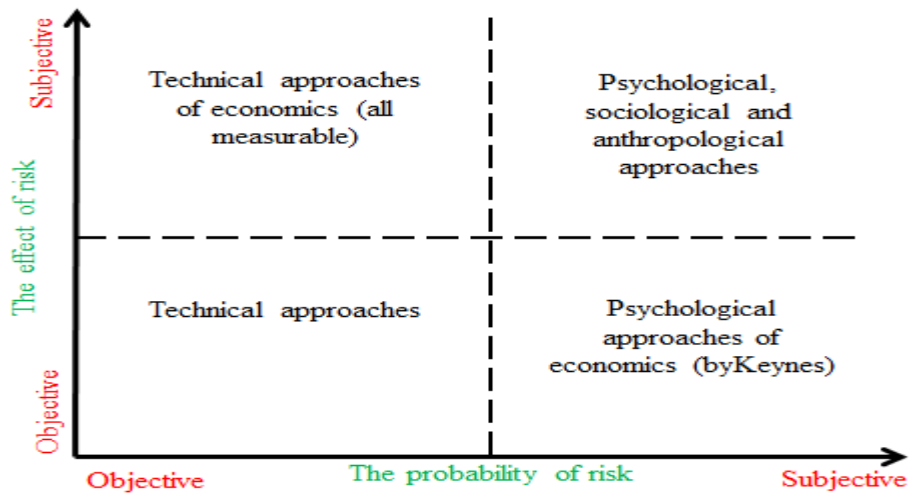
Most of the risks are invisible at the beginning, and can't be designed for any strategy, but the most significant risks need to be calculated and planned. The best solution depends on the type of the risk, but how do companies handle the risks? The purpose of the study is to present project risks and treatment methods based on the opinion of Hungarian companies, showing the most commonly used methods.

**Key words:** *Project risk, risk management, primary research, SME*

**JEL code:** M21, E22

### **Introduction**

The researchers have long been interested in the recognition and more in-depth exploration of the definition and types of risk in all the sectors of the economy. Risks are integral parts of our everyday lives, both at a personal and organizational level. Projects are not exceptions either. Risks are present both in the external and internal environment of the enterprises, thus in the micro and macro environment of the projects too. The definition of risk is normally associated with something negative, although it is an event or happening that can have a negative and positive impact as well on the profit or project result of the companies. According to Renn (1992), risks are growing on the breeding ground of uncertainty, and uncertainty is the future itself, based on the author's way of thinking. The future can never be known with full certainty, which is why the different forms of risk and their different strengths must always be taken into account. In the everyday language the definitions of risk and danger often get mixed, albeit they are strongly divergent. On one hand, a risk can mean a positive or negative outcome too, and in risks there is always an opportunity for action, namely that we can do something about them, we can assess and manage them (Bonss, 1998), while dangers usually come with negative consequences and they occur independently of the organization. Dangers cannot be – or very hard to be – prepared for, so it is preferable to deal with them in the risk management period. With regard to risks it does make a difference how big their probability is to materialize, or how big their estimated effect is. On the basis of these two factors Vasvári (2015) set up a matrix that shows the two factors, along with their subjective and objective value judgements.



Source: According to Vasvári (2015) own compilation

Figure 1.: **The effect and probability of risk**

The risk control of the enterprises has a significant literature background in the form of risk management, which also applies to the projects after certain changes and reconsideration. The goal of risk management for the enterprises is handling the risks for the purpose of profit maximization (Domokos et.al, 2015). Profit maximization is one of the basic strategic goals of an enterprise, in addition to expansion and growth. However, the road to increasing profit is full of risks, which can either be managed or transferred. Based on the literature of strategic management, two prevailing views have emerged in terms of sharing the benefits and risks: value-creating and risk-sharing perspectives (Melese et.al, 2017). From the perspective of value creation the issue may be interpreted as the stakeholders are cooperating for the sake of achieving the goal representing the value, and then they share the obtained profit among each other. The risk-sharing perspective can be interpreted in a similar way, only this time the goal is sharing the risks. In the case of projects these two features also dominate, and the only question is how the value and risks are shared between the actors and stakeholders.

Risks are inherent elements of every project. The latest edition of PMBOK deals with project risks from two aspects:

- Individual project risks, which will have a negative or positive impact on one or two projects when they occur,
- Overall project risks, which include the individual project risks as well, have an effect on the whole project and they are able to influence the project results positively or negatively.

Part of the risks derives from the complexity of the projects. With regard to the complexity of the projects, Geraldi et al. (2001) named the following five dimensions: structural complexity, uncertainty, dynamic, pace – speed, and socio-political dimensions. Every one of them is a risk-generating factor that needs to be evaluated in the course of an exploratory analysis.

The risks are meant to be handled by the risk management of the project (PRM<sup>5</sup>), which is more and more considered to be a factor increasing the probability of the project's success

<sup>5</sup> PRM = Project Risk Management



(Olechowski et.al, 2016), yet the usage of these techniques and tools is still rather occasional to the project managers (Raz et.al, 2002). Several techniques exist for the management of risks. Some of them can be eliminated by insurance, while others can be minimized or shared (Lewicki et.al, 1998) by an appropriate calculation, like for example by NPV calculation (Paquin et.al, 2016) or by contracts (Adler et.al, 2016), but still there are factors that remain unmanageable. Fekete (2009) mentions two levels of risk management:

- risk controlling, as a cause-specific measure (reducing the probability of occurrence, reducing the effect), and
- risk financing, as an effect-specific measure (insurances, contracts).

Rudnik and Deptula (2015) found the fuzzy system to be optimal for the assessment of project risks, but they did not define action plans about how to handle risks and in what form. Kumar and Yadav (2015) suggested a computer risk analysis, and therefore they also examined what kind of relationship could exist between the risk factors and the project result based on the BBN method. Kosztyán (2015) recommended using the matrix-based project design technique when there are flexible interdependencies between the certain activities.

The risks can be very diverse, and there are several forms of their categorization. Renn (1998) claimed that there are technological risks created by the social environment, high-volume risks that cannot be controlled by individuals, monetary risks and risks voluntarily taken by individuals. Coenen (2004) named five groups of risks: market risks (competition), operational risks (operation), financial risks (equity transactions, exchange rates, interest rates), environmental risks (legislation, business), and other risks (organizational structure, natural environment).

## **Research results and discussion**

### **1. Methodological background**

The research results introduced in this study are part of a primary questionnaire research conducted in 2017. The research was carried out in Hungary with the help of a pretested and standardized questionnaire form. The present research was preceded by a previous survey among enterprises, which had been preceded by an in-depth interview analysis. The present questionnaire form was created as a result of these two former rounds, and it was a complex questionnaire, covering the financing and investment activity of the enterprises. The survey paid special attention to the enterprises' project management and project financing practices as well. During the research we received 521 questionnaires, but only 416 of them were assessable enough to be included in the sample. The results of the research are presented in this study based on the employment figures of the responding enterprises. The composition of the sample is illustrated in the below graph.

As it is shown, the majority of the sample, 85%, comprised of smaller enterprises with less than 50 employees, which meant 355 enterprises. The proportion of the medium-sized enterprises was 9% (38 enterprises), while the larger companies had a percentage of 6% (23 enterprises), therefore it can be established that the results presented in this study introduce the possible ways of assessing risk management tools mainly from the aspects of the small and medium-sized enterprises.

### **2. The results of the research**

There are several options for managing risks. The project promoters choose to reduce the risks most of the times, if they have the opportunity. In the proactive approach reducing the risk

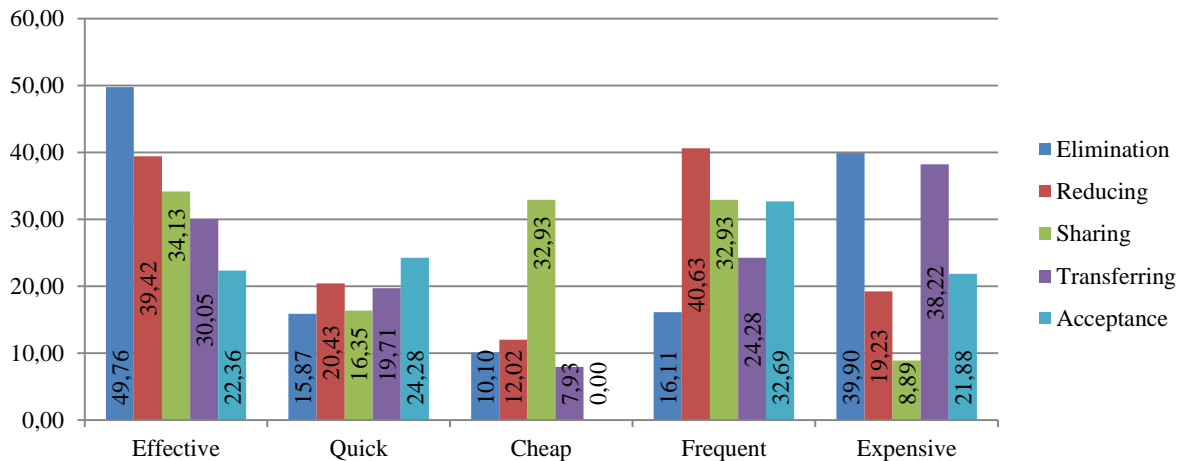


basically means its prevention, but in order to do so it is necessary to know the risk in advance. In the reactive approach reducing the risk means reducing the effect of the event itself. Risk aversion seems to be an adequate method too. In this case the risky activities that are deemed dangerous in this regard are left out of the project.

There is another actor that gets usually involved in sharing the risks, namely the insurance companies, who take on the negative burdens deriving from the occurring risks under appropriate conditions. The risks can also be shared between involving subcontractors.

In the context of this study the most important risk reactions are reviewed (elimination, reduction, sharing, transfer, acceptance), together with the assessment of their potential characteristics (efficiency, quickness, cheapness, frequency, costliness). On top of their introduction, in the study the individual reactions are presented along the characteristics, mainly on the basis of the opinion of the Hungarian small and medium-sized enterprises and the percentages of the answers.

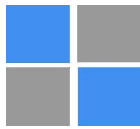
The below graph shows that the respondents considered the elimination of risks as the most effective method, but they were also aware that this is an expensive solution of risk management, as it is proven by the average ratings too. With respect of reducing the risks they highlighted the efficiency again, but there is an even higher emphasis on the fact that unfortunately it is a frequently used mode of management. Efficiency as the primary aspect also came up with regard to sharing the risks, which at the same time was considered to be a cheap and common method as well. Risk sharing is mainly carried out through insurances, the value of which is insignificant compared to the potential danger. This is why the respondents underlined cheapness in connection with sharing. The transfer of risks was undoubtedly deemed an expensive method, although efficiency was a key factor here too. Unfortunately the acceptance of risks is a common reaction, as the results of the research confirmed.



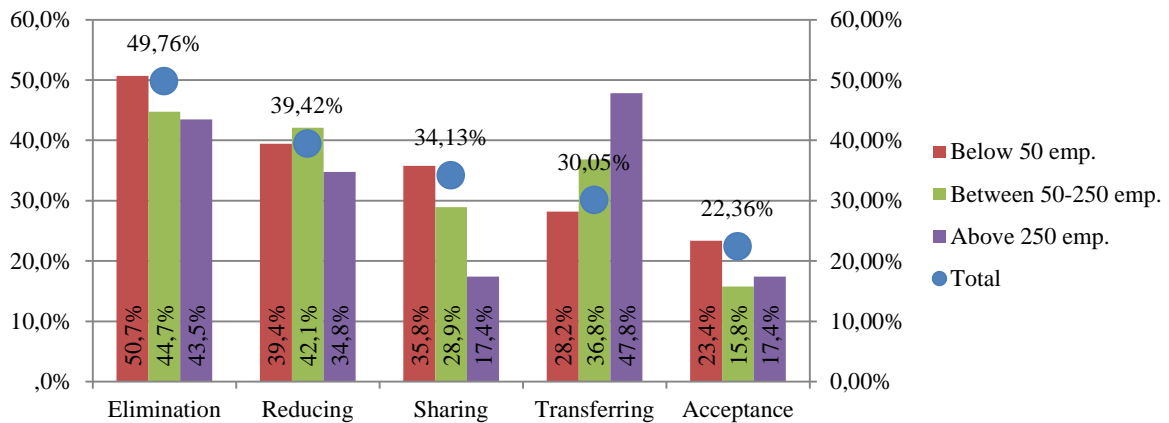
Source: own research, 2017, N = 416

**Figure 2.: Evaluation of risk management methods from different aspects**

Hereinafter we examine the above introduced risk management methods by their efficiency in terms of the groups created on the basis of the size of the respondents. Regarding efficiency the enterprises ranked the elimination first (49.76%). The elimination of risks arises as an even more meaningful measure in the case of enterprises under 50 employees. Reducing the risks also had a relatively high mean (39.42%), which was more accentuated at the medium-



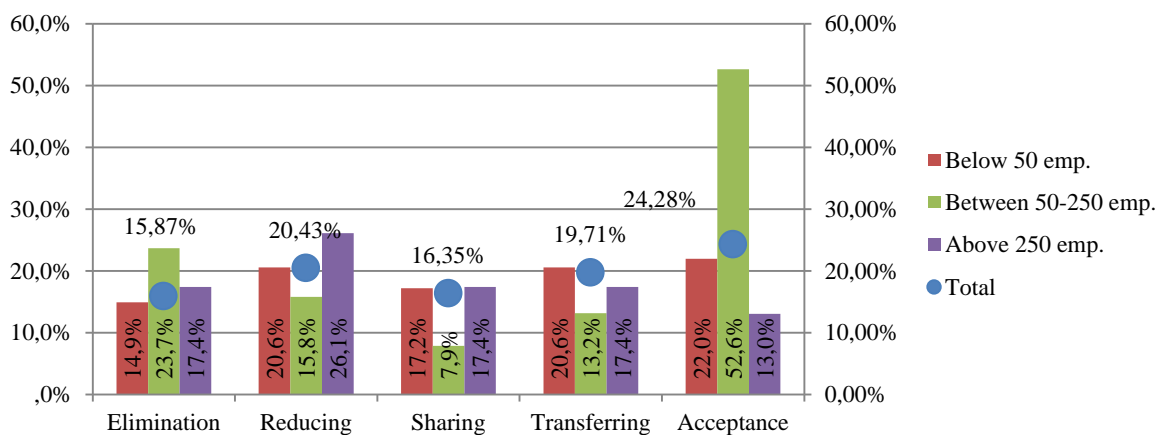
sized enterprises. With regard to sharing, it is the opinion of the smallest enterprises that was slightly above the average rating, or in other words they were the ones considering risk sharing to be the most effective method, compared with the other groups. The medium-sized and largest enterprises gave answers higher than the average rating in terms of the efficiency of transferring the risks, so according to their point of view it is an effective solution as well. Acceptance was ranked higher by mostly the smaller enterprises, since often this is the only risk management method available to them due to their situation and strength.



Source: own research, 2017, N = 416

**Figure 3.: Evaluation of risk management methods by the effectiveness according to the opinion of the respondents**

In connection with quickness it can be established that acceptance received the highest average rating (21.28%), which was only exceeded by the medium-sized enterprises, as half of them argued in favour of the quickness of acceptance. Reduction got a similarly high rating too, and of the responding enterprises the smallest and the largest ones underlined only this method with higher percentage than the mean. It was also the smallest and the largest enterprises who found sharing to be fast, and the situation was the same for transferring the risks. It can be stated that from the aspect of quickness none of the listed methods were given a high figure by the respondents, which is also clearly shown in the graph below.



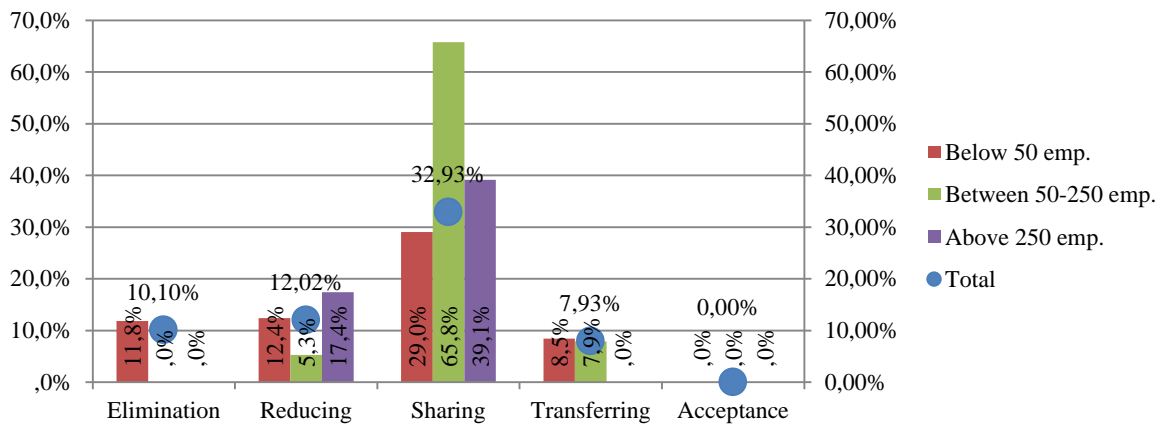
Source: own research, 2017, N = 416

**Figure 4.: Evaluation of risk management methods by the quickness according to the opinion of the respondents**





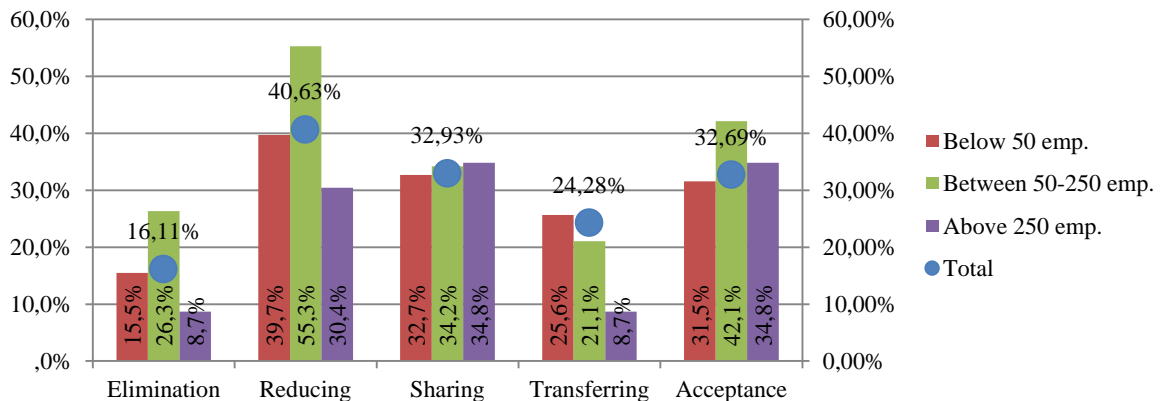
It can be seen in the below graph that a very small percentage of the responding enterprises deemed the listed risk management methods cheap. The only exception was sharing, with a 32.93% average rating. This percentage was higher in the case of the medium-sized and the largest enterprises. All the other risk management methods were around 10% with regard to cheapness, which implied that the enterprises did not find any of the methods cost-effective for risk management purposes. Interestingly, acceptance received a complete rating of 0%, so every responding enterprise agreed that acceptance is not a cheap method at all, in fact, it had rather proved to be an expensive and costly instrument.



Source: own research, 2017, N = 416

**Figure 5.: Evaluation of risk management methods by the cheapness according to the opinion of the respondents**

Concerning the frequency of applying the methods, the most popular solution seems to be reducing the risks, which was used by the medium-sized enterprises the most often based on the graph below. About one-third of the enterprises said that sharing and acceptance were relatively common ways of handling the risks. In the case of both methods the medium-sized and the largest enterprises were the ones showing higher than average ratings. It is peculiar that elimination was not considered as a frequently used method, which is confirmed by the 16.11% average rating and only the medium-sized enterprises were able to produce higher figures than that.

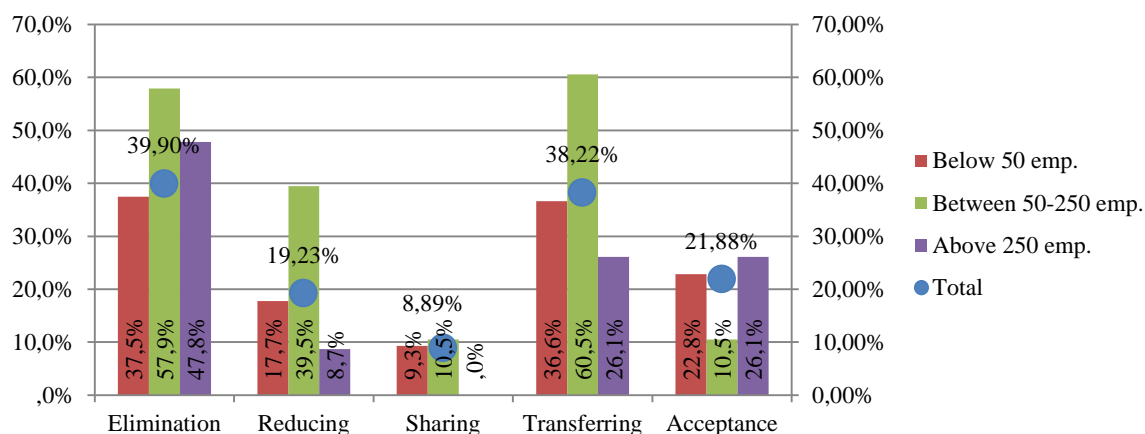


Source: own research, 2017, N = 416

**Figure 6.: Evaluation of risk management methods by the frequency according to the opinion of the respondents**



Last but not least, I have examined the costliness of risk management too. The responding enterprises deemed the elimination and transferring of the risks the most expensive procedures. While the average rating of risk elimination was 39.9%, exceeded by the medium-sized and the largest enterprises, transferring the risks got an average rating of 38.22%, which was also exceeded by the medium-sized enterprises, where 60% of the respondents favoured this feature. Acceptance had a lot lower rating in terms of costliness, and the enterprises found risk reduction to be the least expensive method.



Source: own research, 2017, N = 416

**Figure 7.: Evaluation of risk management methods by the cost according to the opinion of the respondents**

## Conclusions

There are numerous modes and tools for the risk management of projects. A myriad of literature deals with the issue for the sake of providing more knowledge and information to the enterprises, so that higher proportion of the projects may reach their designated goals. On the basis of the research results it is clear that the most important aspect for the project promoters in relation to the chosen risk management method is to be rather effective, which definitely has a major significance in practical terms. With respect to frequency they mostly chose risk reduction and sharing, but acceptance was not far behind the most commonly used methods either. Regarding the costliness of the risk management methods it was apparent for the enterprises that sharing is the cheapest procedure, whereas transferring and eliminating the risks were felt to be expensive.

On this basis, it can be concluded that in connection with the Hungarian small and medium-sized enterprises the field of risk management needs to be improved. The potential toolkit should be enhanced and the professional knowledge of the project promoters should be widened as well, so the majority of the projects could be carried out successfully instead of joining the group of failed projects. The professional support organizations should play a larger role in this, but the educational institutions should also promote the acquisition of knowledge through various methodological publications, awareness-raising presentations and brochures. Hopefully in the future the knowledge on risk management will be wider and it will be integrated into practice in greater proportion too in order to break the trend ongoing for many years, namely that only one-third of the projects can achieve the desired goal.



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## **THE RELEVANCE OF PROJECT SUCCESS CRITERIA AND REQUIREMENTS IN PROJECT MANAGEMENT**

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SUPPORTED THROUGH THE NEW NATIONAL EXCELLENCE PROGRAM OF THE MINISTRY OF HUMAN CAPACITIES

### **Abstract**

Projects have become key players in national economies today. Projects are concrete manifestations of investments, there are no investments without projects, and without them the economy can not grow substantially. However, projects are unsuccessful in many cases, because they aren't prepared in time, don't achieve the required performance they expect from them. A common cause of project failure is a poor planning process, budgetary problems, the missed investment calculations, or the omission of sustainability, relevance, and feasibility.

These expectations are expressed in every project management course, all of the literature dealing with the projects, but the project actors don't give the required relevance to them. The aim of this paper is to examine the above-mentioned triple success criteria system based on the opinion of Hungarian companies, in addition to measuring the elements of a classical project triangle.

**Key words:** *Project success, project management, primary research, SME*

**JEL code:** O10, M10

### **Introduction**

Projects are always temporary arrangements that are established for pre-set objectives. Success for a project means achieving the objectives, but the road to success is paved with various risks and difficulties. Therefore in many cases the expected success of a project turns into failure. Several organizations have already tried to estimate the number of unsuccessful projects. An organization called Wellingtone (n.d., a.) defined the project as such a change-inducing endeavour that has to meet three criteria for the sake of success:

- Alignment to the strategy of the project promoter,
- Must have priority over other initiatives, which are in competition with the project for scarce resources,
- Must have a positive impact in the future.

Based on some surveys, 70% of the projects fail due to inadequate planning. The most common mistakes are the underestimation of the budget and the insufficient management of risks. The failed projects will not be able to contribute to the increase of the investment ratio and to the promotion of the economic growth. Hence the failed projects will always appear as a loss or damage, for which the organization wasted the resources in vain. These effects also show up at the level of the national economy as a loss in the form of lost growth.

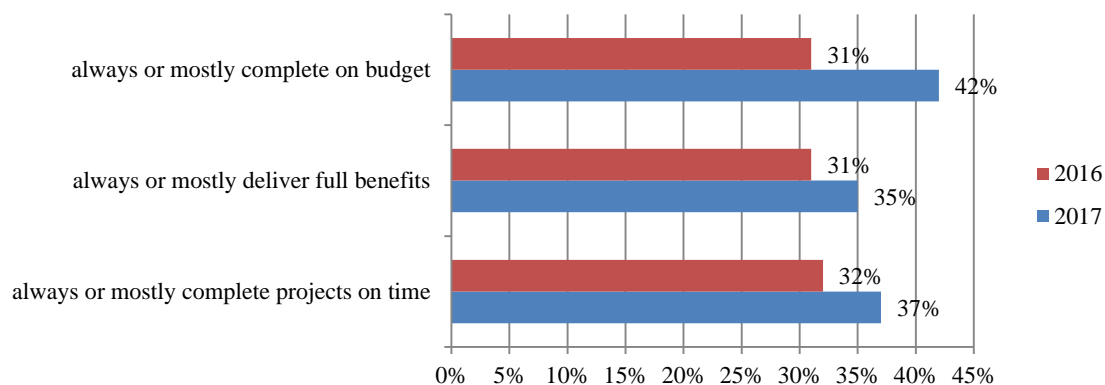
The above cited organization also interpreted success in three dimensions:

- Successful project management that is capable of delivering the predefined result on time and within the budget, in which setting up the correct milestones has a huge role,
- Successful project, which reaches the pre-set business goals,
- Successful enterprise, which is able to approach the strategic goals, meeting the expectations of all actors (owners, managers, employees, other stakeholders).



The organization provided methodological recommendations as well (n.d., b.) for the sake of achieving the project's success. Based on their theory there are six steps leading to the success of the project: preparation, planning, communication, monitoring, controlling and review.

The annual project management survey conducted by the organization examines the key factors along the project characteristics, through which success is measurable and the tendencies can be determined too. The results are summed up in the diagram below.



Source: Wellington, 2016, 2017

Figure 1.: **The performance of the project success criteria**

As the chart shows, there has been a significant improvement in the success features of projects: while in 2016 only one-third of the projects had been carried out on time and within the budget under the given performance characteristics, a year later this proportion was notably above 35%. All this was due to the better project management, the more thorough planning and the more conscious application of the project management methodologies.

According to Pinto and Slevin (1988) the success of a project also highly depends on how well it can be implemented into the project promoter organization. This process almost always hinges on the successful implementation of three factors: the technical and organizational validity, and the organizational efficiency. Afterwards they defined the criteria of project success too from the perspective of the project and the client. In order to carry out successful projects, on the project part there are always three factors that need to be carefully and accurately determined: time, cost and efficiency, which became known as the classic project triangle or iron triangle. From the client's point of view usability, efficiency and satisfaction are the success factors.

The success of the projects can only be measured by the clear definition of the success criteria. Görög (2008) defined the success criteria as such benchmarks that give an unequivocal answer to whether the project was successful or not. The success criteria can also be defined by certain indexes that are called key performance indicators (KPI) in the literature. This method is applied in the projects in a way that the indicators and the related minimum acceptable ratings are established at the planning stage (Toor – Ogunlana, 2010), and the success of the projects is measured against their fulfilment. The KPI method can be excellently used in projects where the objectives are quantitative, meaning that they are measurable and analysable. The method is



hard to use in the case of outputs that are difficult to measure, due to the lack of measurable performance.

According to De Wit (1988) the success of a project can be measured from two aspects, the success of the classic project triangle or project management, and the success of the project itself. The latter can be best defined by the satisfaction of the users. Baccharini (1999) continued De Wit's theory and said that the success of a project is basically the success of the product and the project management together. Baccharini's theory also referred to the project triangle, and turned to user satisfaction with regard to the product success. Both recently introduced theories are described as two-dimensional.

Görög (2007) measured project success in three dimensions. The iron triangle being the starting point, he considered organized satisfaction to be the criterion of success, in addition to the satisfaction of the stakeholders.

Bannermann (2008) interpreted project success in several dimensions. The forms of success can be:

- Success of the project management, which can be measured via the implementation of the above mentioned project triangle, and it is the most often used criterion. However, this success factor has many limitations. It is criticized by its opponents mainly for putting the primary focus on the assets of the project, while disregarding the purpose it was created for.
- Success of the product, which includes satisfaction with the end product of the project, usability and quality as well, based on the factors of the iron triangle.
- Business success, which – on top of the success of the project management – also takes into consideration how the project, carried out on the basis of the triangle, will be able to be integrated into the organization and what kind of benefits it will bring to the organization.
- Strategic success, which is integrally linked to the previous criterion and underlines the long-term utility and developmental role of the project in the long term.
- Success of the process, which is the most neglected criterion and describes the success of the path towards the objective. For the sake of the full implementation of this process, the organization needs to make serious efforts so that the project can meet its target.

Fortune and White (2006) also dealt with the identification of success criteria. As a result of their extensive researches they found that there are five crucial areas in the projects that are of particular relevance on the road to success, which are the followings:

- Clear-cut objectives (scope),
- Clear, detailed, up-to-date plans (plan),
- Communication with the stakeholders,
- Support of the management, and
- Involving the client/user from the start.

It can be seen from the above literature that project success can be defined by a lot of factors. However, we mustn't forget the basic principles suggested by the classic iron triangle, namely that a project cannot be successful if it does not meet the characteristics set in the triangle, nor if it overachieves them. These are only supplemented by the other criteria, so that the projects could reach their objective for the sake of the organization and the clients.



## Research results and discussion

### 3. Methodological background

The research results introduced in this study are part of a primary questionnaire research conducted in 2017. The research was carried out in Hungary with the help of a pretested and standardized questionnaire form. The present research was preceded by a previous survey among enterprises, which had been preceded by an in-depth interview analysis. The present questionnaire form was created as a result of these two former rounds, and it was a complex questionnaire, covering the financing and investment activity of the enterprises. The survey paid special attention to the enterprises' project management and project financing practices as well. During the research we received 521 questionnaires, but only 416 of them were assessable enough to be included in the sample. The results of the research are presented in this study based on the employment figures of the responding enterprises. The composition of the sample is illustrated in the below graph.

As it is shown, the majority of the sample, 85%, comprised of smaller enterprises with less than 50 employees, which meant 355 enterprises. The proportion of the medium-sized enterprises was 9% (38 enterprises), while the larger companies had a percentage of 6% (23 enterprises), therefore it can be established that the results presented in this study introduce the possible ways of the achieving the success criteria mainly from the aspects of the small and medium-sized enterprises.

### 4. The results of the research

During the research through 27 statements I was looking for an answer to how the responding enterprises assess the success criteria of the projects on a four point Likert scale. Several of the listed statements were related to planning and implementation, but there were success factors deriving from the micro and macro environments as well. I asked the respondents to grade the importance of the criteria on a scale of four, where the highest grade represented the most important criterion. The below table contain the results of the research by the average ratings, highlighting also the ratings given by the certain segments.

Table 1

**Assessment of the project success criteria based on the mean values given to the certain levels**

Criteria	Mean	Below 50 emp.	Between 50-250 emp.	Above 250 emp.
Actual and real cost planning	3,43	3,44	3,26	3,57
Actual and real resource planning	3,42	3,43	3,21	3,48
Actual and real time planning	3,36	3,39	3,11	3,30
Accurate, thorough planning	3,30	3,32	3,42	2,70
Solid financial background of the project	3,28	3,31	3,13	3,13
Continuous communication	3,27	3,31	2,84	3,39
Flexible reaction to changes	3,27	3,28	3,11	3,30
Adequate risk management	3,23	3,23	3,08	3,48
Real and accurate needs assessment	3,23	3,25	3,26	2,78
Well-trained and prepared project team	3,22	3,23	3,21	3,13



Well-trained and prepared project manager	3,22	3,22	3,16	3,30
User satisfaction	3,17	3,22	2,82	3,04
Adequate risk assessment	3,11	3,14	2,66	3,30
Adequate level of financial reserves	3,09	3,12	2,74	3,26
Adequate level of human resources	3,05	3,08	2,55	3,35
Meeting the user expectations	3,01	3,06	2,68	2,78
Technical compliance of the project result	2,99	3,03	2,82	2,74
Implementation of adequate milestones and control points	2,96	2,92	3,03	3,48
Stable and strong sponsor	2,89	2,88	3,13	2,78
Content definition of the project result	2,86	2,92	2,47	2,61
Integration of the project result into the organization	2,75	2,74	2,61	3,09
Wide acceptance of the project result within the organization	2,70	2,69	2,63	3,00
Predictable macro environment at a domestic level	2,67	2,66	2,95	2,35
Supporting economic policy at a domestic level	2,65	2,66	2,29	3,13
Predictable macro environment at an international level	2,48	2,47	2,68	2,26
Wide acceptance of the project result in a social context	2,44	2,43	2,50	2,57
Supporting economic policy at an international level	2,39	2,35	2,37	3,13

*Source: own research, 2017, N = 416*

It can be stated on the basis of the results that for the enterprises the most important success factor with the highest average rating (3.43) was the real cost planning. The enterprises can perfectly see that without a real budget the projects will fail, so they will not be carried out to the original plans. The importance of the actual and real resource planning tightly followed with a rating of 3.42. The actual and real time planning was the third with an average rating of 3.36. The first three success criteria of the sample mean were practically the iron triangle, except for efficiency. The responding enterprises found the other planning-related factors significant too, which came in after the third place, and they considered the stakeholders' involvement in projects to be important as well. Interestingly, the supporting economic policy at an international level was deemed the least crucial success criterion. Based on the opinion of the enterprises it can be established that changes in the international environment cannot substantially influence their projects. Wide acceptance of the project result in a social context was also deemed less significant. It is peculiar, because the majority of the projects fail due to the insufficient support from the environment, as the society does not accept them or agree with them. This statement only received an average rating of 2.44. Finally, the criterion regarding the macro environment, namely the predictable macro environment at an international level, was among the last ones too. The economic policy and the domestic macro environment were considered to be more important than this, since they were not included in the last three factors.

The smallest enterprises – the ones with less than 50 employees – also put the actual and real cost planning, resource planning and time planning to the first three places. All three success criteria received higher than average ratings. In their point of view the macro environment at an international level, the international economic policy and the wide acceptance of the project result were the least relevant factors. Since mainly the smallest enterprises constituted the sample, therefore their priority ranking was evidently the same as the assessment of the enterprises in the whole sample.





The accurate and thorough planning was the most important for the medium-sized enterprises with employees between 50 and 250. It got a lot higher rating than the sample mean (this criterion was fourth in respect of the entire sample). In their opinion cost planning and needs assessment were also essential. They gave an average rating of 3.26 to the actual real cost planning, the same as to the real and accurate needs assessment. The latter criterion was only eighth in terms of the whole sample. On this basis it can be established that the medium-sized enterprises put a lot more emphasis on the planning work preparatory to the projects than their counterparts from other segments. They also placed the actual and real resource planning to the fourth place, which further confirmed the former conclusions. From their perspective the domestic economic policy was the last, slightly preceded by the rating of the international economic policy. Third from bottom was the content definition of the project result again, which was even less important than it was for the whole sample.

In the case of the largest enterprises cost planning and resource planning took the first places. The actual and real cost planning had an average rating of 3.57, and resource planning followed with an average rating of 3.48. Both figures were substantially higher than the sample mean. It is interesting that in their case the adequate risk assessment was ranked third with the same 3.48 average rating. This factor was only tenth among the enterprises of the whole sample. All this refers to a more conscious project management that takes the risks determining the project result into account more seriously. The last places were taken by the acceptance of the project result, along with the predictable macro environment both at a domestic and international level. Nonetheless, in the eyes of the largest enterprises the domestic and international economic policy had a more relevant role, which was proved by their ranking as well.

I classified the above assessed statements into groups with the help of factor analysis. First, through the KMO value I examined how suitable the data were for factor analysis. The result was 90.62%, which verified that the data were particularly suited to conducting the analysis. During the analysis I used the Varimax method, and after performing several trials I opted for the three factor matrix, since it shows the most optimal grouping of the success criteria the best.

Table 1

**Rotated factor matrix of success components**

	Component		
	Planning	Preparation, construction	Supporting
Actual and real cost planning	0,791		
Actual and real time planning	0,752		
Continuous communication	0,722		
Actual and real resource planning	0,651		
Well-trained and prepared project team	0,580		
Content definition of the project result	0,562		
Well-trained and prepared project manager	0,546		
Real and accurate needs assessment	0,517		
Adequate level of financial reserves		0,721	
Supporting economic policy at a domestic level		0,656	
User satisfaction		0,632	



Adequate risk assessment		0,614	
Flexible reaction to changes		0,593	
Adequate level of human resources		0,589	
Solid financial background of the project		0,565	
Meeting the user expectations		0,542	
Adequate risk management		0,516	
Technical compliance of the project result		0,513	
Accurate, thorough planning		0,490	
Predictable macro environment at an international level			0,743
Integration of the project result into the organization			0,725
Wide acceptance of the project result within the organization			0,702
Supporting economic policy at an international level			0,680
Wide acceptance of the project result in a social context			0,663
Predictable macro environment at a domestic level			0,600
Implementation of adequate milestones and control points			0,431
Stable and strong sponsor			0,399

Source: own research, 2017, N = 416

On this basis the criteria can be divided into three groups, namely criteria concerning planning, preparation and implementation, and finally there are support-related success criteria:

- Those criteria belong to planning that significantly affect the planning of cost, time and resources, which already includes the establishment of the support team (managers, team members),
- The statements belonging to the preparation and implementation factor are related to reserves, risk management and the stakeholders, which are able to have a great impact on the end result of the project during the realization stage,
- Support contains such factors like the aspects of the project result and its acceptance, but the macro-environmental factors are in this group too – these factors are relevant and emphasized rather towards the end of the project.

It is apparent which of these criteria are more pronounced, which ones the project promoter enterprise must pay more attention to. It can be seen through the above analysis that every enterprise prioritized the first factor, and rather disregarded the other two factors. It somewhat answers the question why the projects are failing in such great volumes.

## Conclusions

Based on the research results it can be asserted that the enterprises deemed planning crucial from every aspect, regardless of their size. They considered this as the strongest success criterion, meaning that if a project is well planned then there is a high probability that it will meet the expectations and achieve the desired result. It can also be acknowledged that the majority of the enterprises do not specifically deal with the economic policy and the macro environment in terms of success, they feel them to be distant with regard to their own projects, although they can largely steer these projects in a completely different direction. This is true both in a domestic and international context. The results of the research revealed that the enterprises do not see it as relevant to manage the risks appropriately, and they do not attach high importance to the project managers and the project team either. This is the case for the technical questions, the technical compliance, the determination of the milestones and the content definition of the project result as well.



From the aspect of the success factors it is important to highlight that– apart from planning – the enterprises of the sample neglect the other two factors. This rather proves the lexical project management knowledge and not the practical side. From the project management’s point of view the support mechanisms are truly essential, the underlying factors that seem to be insignificant, but they are capable of deterring the project from its set path. The challenge of the future is to emphasize the knowledge on the two neglected factors more in order to help initiating successful projects in higher percentage than these days.

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## CRITICAL SUCCESS FACTORS FOR EARNED VALUE ANALYSIS IN MANAGING CONSTRUCTION PROJECTS

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### Abstract

Completing construction projects on time and within budget is important to achieve project objectives. Project Managers use Earned Value Analysis (EVA) in order to evaluate project performance at certain points in time to ensure successful project completion. The use of EVA, in construction projects, is on the rise due to its importance. Several barriers make it difficult to implement EVA in construction projects. This paper evaluates the main barriers and critical success factors for implementing Earned Value Analysis in construction projects in the United Arab Emirates (UAE). The main barriers and success factors were identified through literature review. A survey was then developed and distributed to construction professionals in the UAE. Thirty-Five surveys were analysed since their companies are implementing EVA. The results indicate that the main benefits of using earned value analysis include providing a database of completed projects that can be used for comparative analysis, achieving project cost objectives and providing early warning signals for performance problems. The main limitations of EVA include dependency on past performance for forecasting, independency of activities and difficulty in incorporating scope changes. The results also indicate that the main barriers to EVA implementation include cultural resistance, ill scope definition and lack of expertise. The Critical Success Factors (CSFs) include top management support, high level of acceptance among project managers and strong administrative and technical ability of project managers. The paper also presents recommendations for the successful implementation of Earned Value Analysis (EVA) in construction projects.

**Key words:** *Earned Value Management, project management, construction projects, United Arab Emirates (UAE)*

**JEL code:** L74: Construction; O22: Project Analysis

### Introduction

The early phase of Earned Value Management (EVM) goes back to the 1960s. It became a standard in 1998. In May 1998, an earned value management commercial standard was approved and it was adopted in 1999 as the official US Department of Defence (DOD) approach (Webb, 2003). EVM consists of a framework which integrates project's scope, cost, and schedule together. Earned Value Analysis (EVA) is a quantitative technique that is used in project management to evaluate performance and predicate final project outcomes, by comparing executed work and their cost against planned work and their cost (Lukas, 2008). Earned Value management is a management methodology of integrating scope, schedule and resources, for objectively measuring project performance and progress (Storm, 2008). The method depends on quantitative approach to measure preformed work. Managing using Earned Value Method considered as "managing with open eyes" because project manager and site team can obviously see the difference among what have been accomplished, what was planned and actual cost (Snog and Shalini, 2009). EVM is a powerful tool that assists the decision process by providing indicators (indexes) which act as alarms to keep the project on time and budget (Kerzner, 2006). Studies showed that the application of Earned Value Management is successful in projects that have clear and tangible objectives; these projects indicate better results in the use of EVM (Vargas, 2003). EVM is considered as a crucial method for project management that can facilitates project control and forecasts the expected final project cost and duration (Lipke,



2009). EVM works as supportive tool for forecasting future cost depending on schedule and budget although many authors has critiqued the assumptions of forecasting in EVM.

The UAE experienced a period of construction boom. Many construction companies had participated in breaking the ground for new buildings and facilities. Dubai has built outstanding projects that no any city can do such as Burj Khalifa, Palm Jemeriah, and world’s islands. Our concern is what kind of system did construction companies used to control the project budget and duration. The objective is to determine the status of Earned Value Management in UAE and especially in Dubai, including its barriers, limitations and success factors. EVM has been widely used in construction companies. Construction companies in Dubai have been controlling their projects through control systems. Although it has been developed long time ago, the method has some imperfections and weaknesses. This paper focuses on the barriers that prevent the proper implementation of earned value management. These barriers considered as obstacles such as company’s qualification, people culture, staff responsibility, project conditions, processes and procedures, and measuring methods. Furthermore, the paper addresses the several limitations in earned value management concept. The paper also presents recommendations for the successful implementation of Earned Value Analysis (EVA) in construction projects.

**Research Methodology**

The research method included four phases. Phase 1 is the literature review. The literature review covered the benefits of EVM, the barriers preventing EV implementation, the limitations faced while implementing EVM, and the critical success factors to maintain EVM across the organization. Phase 2 is the survey development. The survey is developed to analyse the most common barriers and limitations preventing proper implementation of EV in real life project. Phase 3 is data collection. One hundred and fifty surveys were distributed to several construction companies in the UAE. The survey targeted only engineers who worked with EVM method such as project managers, quantity surveyors and cost engineers. Phase 4 is data analysis. Respondents were asked to indicate their level of agreement with the question. Likert scale of 5 to 1 was used to indicate strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree. The weighted average of responses is then calculated from completed surveys. Out of 150 distributed surveys 53 surveys were collected from 29 construction companies. This research considers only 35 surveys, which are EVM implementers. Table 1 summarizes the respondents’ profile.

Table 1

**Respondents’ Profile**

Parameter	Number	%
Years of Experience		
>20 years	11	31%
10–20 years	12	34%
5–10 years	9	26%
<5 years	3	9%
Project Size		
less than 10 M (Dirhams)	0	0
10-50 M (Dirhams)	1	3
50-100 M (Dirhams)	4	11
above 100 M (Dirhams)	30	86
Project Type		
Housing	2	6
Building	24	69
Industrial	4	11
Infrastructure/ Heavy	5	14

*1 US\$ is equivalent to 3.67 UAE Dirhams (2018 Rates).*



**Research results and discussion**

**Benefits of EVM**

There are several benefits from using EVM in construction projects. Table 2 shows the ranked benefits based on the weighted average.

Table 2

<b>Benefits of EVM</b>		
<b>Benefit</b>	<b>Rank</b>	<b>Average</b>
EVM provides a database of completed projects useful for comparative analysis	1	4.32
EVM contributes to achieving project cost objectives	2	4.29
EVM provides early warning signals of performance problems	3	4.29
EVM establishes a single management control system	4	4.26
EVM enables the integration of work, schedule, and cost	5	4.24
The Cost Performance Index (CPI) can be used as a predictor for the final cost of the project	6	4.15
The periodic Cost Performance Index is used as a benchmark	7	4.15
Allows better communication among the project team	8	4.12
Provides one database of information (Multi-disciplinary capability)	9	4.00
EVM contributes to achieving project time objectives	10	3.94
Helps identifying and documenting project risk	11	3.88
The management by exception principle can reduce information overload	12	3.50
EVM contributes to improving project scope definition	13	3.35

*Source: Author construction*

**Barriers**

Several barriers could prevent the proper implementation of Earned Value Management. In this project, various barriers were identified that could lead to a failure in the concept of EV. Before implementing any new method in an organization or project, one should ensure the existence of right supportive requirements. Table 3 express barriers prevent EVM application.

Table 3

<b>Barriers to EVM Implementation</b>		
<b>S/N</b>	<b>Barrier</b>	<b>Reference</b>
1	Lack of organization’s resources to implement EVM	Webb, 2003; Lukas, 2008
2	Cultural resistance ( people resistance) to implement control tool	Storm, 2008; Webb, 2003; Janagan, 2009; Vargas, 2003; Thamhain, 1998
3	Lack of EVM expertise	Janagan, 2009; Storm, 2008; Vargas, 2003; Thamhain, 1998
4	Ill definition of project scope	Fleming and Kopperlman, 2005; Webb, 2003; Lukas, 2008; Janagan, 2009; Vargas, 2003
5	Complicated procedures to conduct EVM	Webb, 2003; Lukas, 2008; Janagan, 2009; Vargas, 2003; Thamhain, 1998
6	Intensive paper work and reporting	Lukas, 2008; Snog and Shalini, 2009, Vargas, 2003; Fleming and Kopperlman, 2005
7	Difficulty in calculating progress	Webb, 2003; Lukas, 2008; Janagan, 2009;



		Orczyk et al., 2004
8	High time and effort commitment	Janagan, 2009; Vargas, 2003; Thamhain, 1998
9	High implementation cost	Webb, 2003; Janagan, 2009; Snog and Shalini, 2009; Vargas, 2003; Thamhain, 1998
10	Lack of top management support	Webb, 2003; Lukas, 2008; Janagan, 2009; Snog and Shalini, 2009

*Source: Author construction*

Table 4 shows the ranked barriers of EVM. Results indicate that people resistance to implement control tool is still ranked the first barrier according to implementers' view. While interviewing participants who obtained the initiation phase of EVM as cost control tool in their organization, they stated, many engineers were rejecting this system saying that we are already making profits without control tool, why now! The next highest barrier is ill definition project scope of work. Many experts face difficulties implementing EVM without frozen scope of work. The last ranked barrier is high implementation cost, which participants pointed out that it is their least concern.

Table 4

**Ranked Barriers to EVM Implementation**

Rank	Barrier	Weighted Average
1	Cultural resistance (people resistance) to implement control tool	4.03
2	Ill definition of project scope of work	3.97
3	Lack of EVM expertise	3.91
4	Lack of organization's resources to implement EVM	3.85
5	Lack of top management support	3.85
6	High time and effort commitment	3.24
7	Complicated procedures to conduct EVM	3.21
8	Intensive paper work and reporting	3.15
9	Difficulty in calculating progress	3.15
10	High implementation cost	3.06

*Source: Author construction*

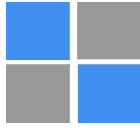
### Limitations of EVM

There are several limitations of Earned Value Management that project managers should be aware of while implementing EVM. There is no perfect method that suits the need for controlling and tracking in the construction world. EVM is the most suitable method currently; however, it is not the perfect one since it has many limitations. Table 5 defines number of these limitations.

Table 5

**Limitations of EVM**

S/N	Limitation	Reference
1	EVM determines project performance based on budget thus ignoring risk, quality, safety	Storm, 2008
2	EVM encourages completing high progress non-critical activities to guarantee higher SPI	Czarnigowska et al., 2011; Lukas, 2008; Janagan, 2009; Moselhi, 2011; Russel, 2009



3	EVM encourages completing lower cost / high value activities to guarantee higher CPI	Kim and Ballard, 2002;
4	EVM represents schedule variance in terms of cost not time	Czarnigowska et al., 2011; Howes, 2009; Kerzner, 2006
5	EVM considers all activities as independent	Czarnigowska et al., 2011
6	Improper application of EVM by project managers (data manipulation)	Webb, 2003; Kim and Ballard, 2002
7	Difficulty in incorporating scope changes	Howes, 2009
8	Dependency on past performance in terms of forecasting	Czarnigowska et al., 2011; Howes, 2009; Moselhi, 2011; Russel, 2009
9	EVM is applicable only on certain types of contracts	Webb, 2003; Floyd, 2004; Snog and Shalini, 2009
10	EVM does not consider the time value of money	Meyer, 2008
11	Lack of suitable standards	Russel, 2009

*Source: Author construction*

The ranked limitations are stated in Table 6. Dependency on past performance for forecasting is the first limitation, followed by independency of activities, then incorporating scope changes. Out of technical point of view, implementers noticed that it is not allows accurate to depend on past performance based on their experience. Furthermore, they may face difficulties accommodating defects of predecessor on successor activities in term of cost and time. Integrating variations due to scope changes into the EVM is intricate and complex procedure. Implementers positioned EVM applicability on contractual agreement as last rank (similar to all responses' ranking) since they consider contracts do not touch EVM reliability.

Table 6

**Ranked Limitations of EVM**

<b>Rank</b>	<b>Limitation</b>	<b>Weighted Average</b>
1	Dependency on past performance in terms of forecasting	3.71
2	EVM considers all activities as independent	3.68
3	Difficulty in incorporating scope changes (variations)	3.62
4	EVM encourages completing lower cost / high value activities to guarantee higher CPI	3.53
5	EVM determines project performance based on activities' budget and cost only thus ignoring risk, quality, safety	3.47
6	Improper application of EVM by project managers (data manipulation)	3.47
7	EVM does not consider the time value of money	3.24
8	Lack of suitable standards	3.24
9	EVM encourages completing high progress non-critical activities to guarantee higher SPI	3.18
10	EVM represents schedule variance in terms of cost not time	3.18
11	EVM is applicable only on certain types of contracts	3.06

*Source: Author construction*





### Critical Success Factors of EVM

There are several factors to ensure proper implementation of EVM in any organization. Some of these factors are presented in this Table 7. The senior management support and project managers' acceptance are the most critical issues to ensure successful implementation of EVM. These two factors as stated in upper section plays big role in changing employees' perceptions and make them think positively toward EVM. As a conclusion, the UAE construction industry includes companies which perform EVM in their cost control system. These companies hired engineers that are specialized in cost control and commercial issues, these engineers have good knowledge about cost management including Earned Value Management.

Table 7

**Critical Success Factors of EVM**

Rank	Success Factor	Weighted Average
1	Strong support from top management	4.32
2	High level of acceptance among project managers	4.29
3	Strong administrative and technical capabilities of project managers	4.24
4	Open communications among project team members	4.18
5	Sufficient organization's resources for EVM implementation	4.18
6	Efficient procedures & processes for EVM implementation	4.18
7	Motivation of team members to use EVM	4.15
8	Adequate computer & software infrastructure	4.12
9	Extensive training on EVM implementation	4.09
10	The use of electronic data interchange	3.85

*Source: Author construction*

### Conclusions

The results indicate that the main benefits of using earned value analysis include providing a database of completed projects that can be used for comparative analysis, achieving project cost objectives and providing early warning signals for performance problems. The main limitations of EVA include dependency on past performance for forecasting, independency of activities and difficulty in incorporating scope changes. The results also indicate that the main barriers to EVA implementation include cultural resistance, ill scope definition and lack of expertise. The Critical Success Factors (CSFs) include top management support, high level of acceptance among project managers and strong administrative and technical ability of project managers. To address the limitations of EVM, future research needs to focus on:

- Developing forecasting models that are not solely dependent on past performance
- Integrate risk in the EVM methodology

Based on the research results, the following recommendations are made:

- Top management support is key to the successful implementation of EVM. Top management need to ensure high level of acceptance amongst project managers and provide training.
- Organizations need to develop efficient procedures and processes for EVM implementation and provide the required resources to support that effort.



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## **STAKEHOLDERS IN MINING PROJECTS**

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### **Abstract**

Extraction of lignite, hard coal and non-ferrous metal ores, in a market economy environment, involves analyzing stakeholders who can significantly influence the success of the project and this will have an impact on the economic dimension and media image. For effective project management, the environment in which the project is to be implemented needs to be taken into account. Based on the analysis of literature, interviews with the mining industry, and the experience of people employed in research units carrying out mining research, stakeholder analysis will be carried out. The paper will attempt to identify stakeholders in the mining sector, identifying and evaluating the factors influencing the impact of stakeholders on the project. As a result of the research, the impact of stakeholders on the project will be determined. The problem will be solved using an Analytic Hierarchy Process (AHP) and its extension Analytic Network Process (ANP) (Saaty, 2005). The example was based on the experience of persons implementing the international research project in mining industry.

**Key words:** *stakeholders, project management, international project, operational research, mining industry.*

**JEL code:** C65, O22

### **Introduction**

Mining industry involves many types of activity. The most aggravating socio-economic environment are extraction of lignite, hard coal and non-ferrous metal ores.

In a market economy environment, it should involve analyzing stakeholders, who can significantly influence the success of the project and this will have an impact on the economic dimension and media image. Project evaluation by stakeholders, is one of the key elements of the project's success. The establishing new knowledge areas in the ISO 21500 standard (ISO 21500: 2012) and also in fifth edition of PMBoK (Project Management Institute, 2013), dedicated only to the stakeholders, is the realization of this view.

In practical projects we have many stakeholders with different influences. Moreover, they have influence on each other. This paper proposes to use Analytic Network Process to describe stakeholders structure in mining projects. We analyse different stakeholders in such projects. The objective of this paper is to adopt method proposed in (Targiel, 2017) to projects in mining industry. We use experiences people involved in international research project titled "Real-Time Reconciliation and Optimization in Large Open Pit Coal Miners", acronym RTRO-Coal, is grant funded by the European Research Fund for Coal and Steel (RFCS), partnered by Technische Universität Bergakademie Freiberg (Germany), AGH University of Science and Technology. Stanisław Staszic in Cracow (Poland), Mitteldeutsche Braunkohlengesellschaft MBH (Germany), RWE POWER AG (Germany) (Benndorf et al. 2015).

The AHP method, which is the predecessor of the ANP method, was used to requirements prioritisation, for quite a long time (Berander and Andrews, 2005). Used mainly for software projects. The first works using ANP for prioritization appeared recently (Akinli Kocak et al., 2013; Ali Khan et al., 2016). However, they did not make structure of stakeholders, how it was proposed in (Targiel, 2017)



First part it is considerations on place of stakeholders in mining industry. Second part of paper presents short introduction to Analytic Network Process. Next part explains considered case. Then we try to calculate stakeholders influence based on hypothetical evaluation. The work ends with conclusions and proposals for further research.

## **Research results and discussion**

### **Stakeholders of the mining project**

A relatively new concept of stakeholder appeared in the management sciences. In the literature and business practice there are still such phrases as: "interested groups", "interest groups", "actors", "partners", "interested parties", "participants". The term "stakeholder" was first used in 1963 in the Stanford Research Institute document to identify groups of entities before which business owners should be responsible and without which the organization would cease to exist (Freeman, 2010). Many later publications on corporate planning (Ansoff, 1965), system theory (Churchman, 1979), organization theory (Rhenman, 1973) and corporate social responsibility (Preston and Post, 1975; Votaw and Sethi, 1973) referred to the concept of stakeholders (Freeman, 2010)

Freeman defines stakeholders as any individual or group that can interact with or be affected by the organization in pursuit of its goals (Freeman, 2010). In this definition, the relationship between stakeholders and the organization may be of a diverse nature, where both stakeholders and particular organization may influence each other.

In the literature, one can meet the concept according to Donaldson and Preston that the stakeholders are people or groups that have direct or indirect contracts with the organization (Donaldson and Preston, 1995). Thus, a stakeholder can be virtually any element of the closer and more intimate environment, which is linked to the organization of the contract, with a specific situational context of great importance in analyzing the impact of the stakeholder on the organization. At this point, it should be emphasized that the organization is not always the subject of interaction of the stakeholders as a whole, it can often be a project or a project.

The concepts that companies operate only to satisfy the interests of their owners (shareholders) are now losing their importance. Contemporary trends resulting from globalization, technical progress and the accompanying increase in people's awareness must lead to a change in the way the company is managed. Therefore, in enterprise management processes, it became necessary to take into account the external environment of the enterprise, while implementation of various types of undertaken activities. Why are such trends can be observed? In order to answer such a question, it is necessary to consider what is the undertaking? Definition of an The Polish Language Dictionary defines that the project is: an action taken for some purpose. Starting an undertaking only for the sake of satisfying the interests of its owners (shareholders) - which would seem reasonable, without taking into account the business environment - in this case both the internal and external environments may be the cause for the failure. This is particularly evident in mining projects, because mining has bad press opinion for years. In the environment of an enterprise intending to implement mining projects, there are stakeholders whose position on the planned project may be either positive or negative, and therefore they may exert a positive or negative influence on the undertaking, as well as the undertaking itself may also influence them in different ways.

On the one hand, the economy of modern countries is very much dependent on the fuel and energy base. In Poland there are hard coal and lignite reserves, with a small share of other fuels, which makes coal the basic source of fuel, and so the energy. The importance of coal as the basic raw material for the chemical industry is also growing. On the other hand, mining activity is associated with the degradation of the natural environment, so for the people living in mining areas it is socially difficult to accept. While in the 19th and 20th centuries, the problem of social consent for mining activity was practically non-existent, it is currently one of the most

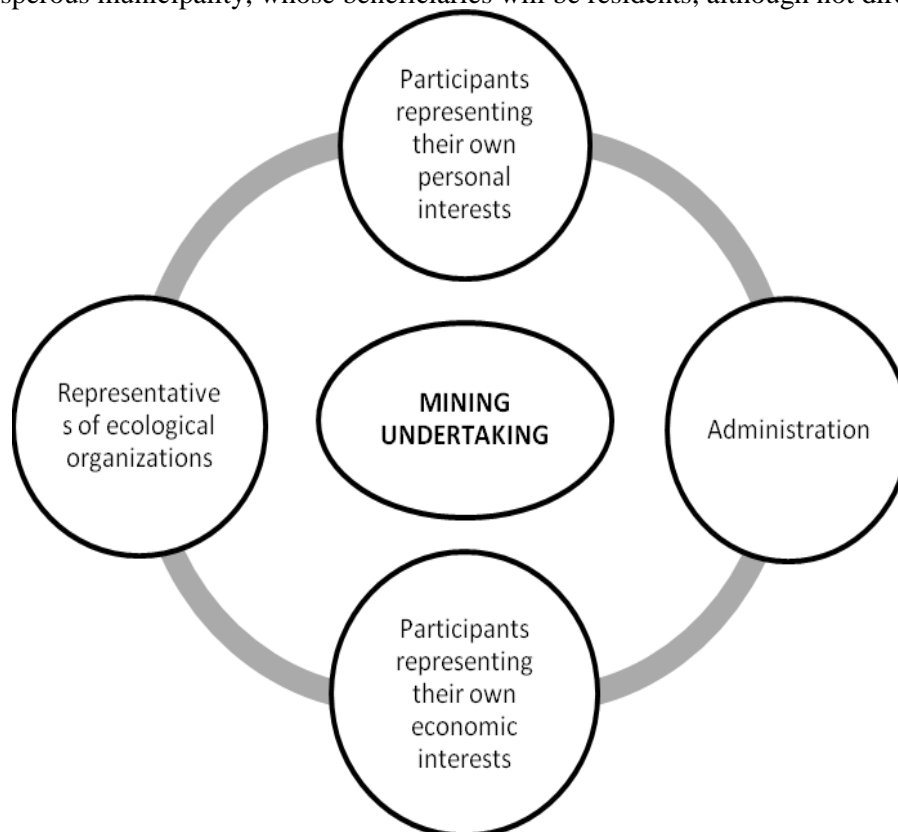


important conditions for the commencement and, often, continuation of mining operations already in progress.

Open meetings and debates are of key importance to obtain social consent, in planned mining undertaking. Without them the project cannot actually be implemented. Different participants take part in debates on mining undertaking. Among them some characteristic groups can be distinguished. They are as follows: participants representing their own personal interests, public administration, participants representing their own economic interests, representatives of environmental organizations.

In the aforementioned groups in the neighbourhood of the mining undertaking, examples of stakeholders were identified.

Among the participants representing their own personal interests, one can distinguish: local communities, associations, trade unions, media (Internet, press, radio, TV). Those are the people whose personal interest is related to their place of residence in the areas of the future investment or in its neighbourhood. As a result of the project, they may suffer losses or they are not sure about the benefits they are promised. Real estate owners have to take into account the need for resettlement or increased noise, pollution, increased pollination, etc. Lack of approval of these stakeholders for a mining project may encourage the local community to organize themselves within associations opposed to planned investments, trade unions and the media may be involved. The neighbourhood of the mining enterprise on the one hand is associated with the risk of real discomfort directly felt by the residents, on the other hand these are the benefits of a prosperous municipality, whose beneficiaries will be residents, although not directly.



*Source: Authors' own work*

**Fig. 1. Environment of the mining undertaking - groups of stakeholders**



Another group of stakeholders is the official administration. These include, among others: local government, councilors, politicians, employees of state offices. They can represent different positions regarding the planned mining project. Their positions may result from election programs or from the law. Stakeholders from the close environment of the mining enterprise may express reluctance, which may be conditioned by the fact that they may also be members of the local community engaged in personal activities in addition to their official functions. They can also express attitudes resulting from resident's expectations. On the other hand, representatives of the administration, observing the problem from a distant perspective, taking into account the benefits resulting from it, are more likely to express a favourable attitude to the planned undertaking.

Among the participants representing their own economic interests, one can distinguish: an investor, local entrepreneurs, producers of alternative energy sources, competitors, coal buyers, suppliers. Among them there may be also people favourably oriented towards the mining enterprise, due to new opportunities in it, as well as potential opportunities to develop their own economic activities. The new mining venture may also arouse objections from those who are fear their current market position, and changes resulting from the new situation.

Representatives of ecological organizations most often postulate against mining enterprises. Their attitude may result from a lack of knowledge; they may also be driven by self-promotion. It is difficult to keep sincere, pro-ecological attitudes, while taking advantage of the benefits of a civilization based on raw materials acquired as a result of mining activities.

#### **Analytic Network Process**

Analytic Network Process (ANP) (Saaty, 1996), is a extension of Analytic Hierarchy Process (AHP). In this method both criteria and variants are called elements. They are grouped into components (clusters). We define source components, sink components and intermediate components. They are connected with paths of influence. We can consider two types of dependence: inner dependence between elements of this same component and outer dependence between elements of different components.

We can define paths of dependencies using tabular method as presented in Table 1.

Table 1

<b>Tabular method</b>		
<b>Influencing components</b>	<b>List of components</b>	<b>Influenced components</b>
$C_2$	$C_1$	
$C_2, C_1$	$C_2$	$C_2, C_j$
...	...	...
$C_2, C_j$	$C_N$	$C_1$

Source: author's calculations based on (Saaty, 1996)

The impact of a given component on another component is derived from paired comparisons as in AHP method.

The derived weights ( $\square_{ij}$ ) are used to weight the elements of the corresponding column blocks of structure called initial supermatrix ( $W$ ). It is assigned zero when there is no influence. Initial supermatrix is obtained by paired comparisons on the elements within the clusters. This supermatrix is a two-dimensional matrix. The priority vectors from the paired comparisons appear in the appropriate column of this structure. We obtain weighted supermatrix ( $\bar{W}$ ) using equation (1) :

$$\bar{W} = [W_{ij} * v_{ij}] \tag{1}$$



Then we compute limited supermatrix ( $G$ ) raising the weighted supermatrix to  $k$  power, using equation (2):

$$\lim_{n \rightarrow \infty} \overline{W}^k = G \quad (2)$$

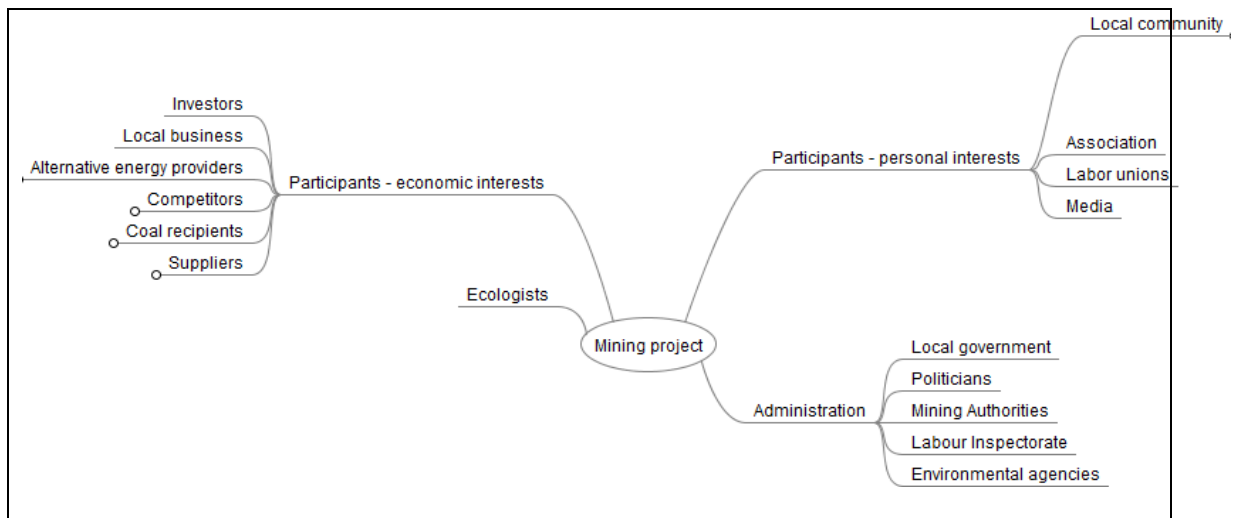
Columns of limited supermatrix gives as priorities of components and elements.

### 5. Considered case

As it was proposed in (Targiel, 2017), we perform first six steps of method:

1. Identification of stakeholders
2. Grouping stakeholders in the cluster
3. Identification the relationships between stakeholders
4. Definition of dependency network
5. Perform paired comparisons of clusters.
6. Perform paired comparisons on the stakeholders within the cluster.

First, based on interviews with specialists, a list of stakeholders appearing in mining projects was developed. It was presented in the form of Mind Map in Figure 2. Not all identified stakeholder lists were expanded. For the sake of brevity of further analysis they were considered as homogeneous groups. They are visible as empty points ending MindMap branches in Figure 2. List of all considered stakeholders is also used in Table 2.



Source: Author's own work

Fig. 2. Stakeholders in mining projects

In second step we are grouping stakeholders on clusters.

Table 2

List of stakeholders		
Group of stakeholders (cluster)	Stakeholder	Used abbreviation
Administration		ADM
Administration	Local Government	lg
Administration	Politicians	p
Administration	Mining Authorities	ma



Administration	Labour Inspectorate	li
Administration	Environmental agencies	ea
Participants - personal interests		PPI
Participants - personal interests	Local community	lc
Participants - personal interests	Association	as
Participants - personal interests	Labor unions	lu
Participants - personal interests	Media	md
Participants - economic interests		PEI
Participants - economic interests	Investors	in
Participants - economic interests	Local business	lb
Participants - economic interests	Alternative energy providers	aep
Participants - economic interests	Competitors	com
Participants - economic interests	Coal recipients	cr
Participants - economic interests	Suppliers	sup
Ecologists		ECO
Ecologists	Ecologists	eco

*Source: Authors' own work*

Then as third step, we will also define the structure of the relationship between stakeholders. The structure was obtained by a tabular method as shown in Table 3.

Table 3

**Tabular method**

Influencing stakeholder	List of stakeholders	Influenced stakeholder
eco, p,	lg	
eco, md	p	lb, lg,
	ma	com, sup
	li	
	ea	
md	lc	
	as	
	lu	
eco	md	p, lc





	in	
p	lb	
	aep	
ma	com	
	cr	
ma	sup	
	eco	p, md, lg

Source: Authors' calculations based on (Saaty, 1996)

Based on these findings, it is possible to define a dependence network, which is not presented here due to its size.

In the fifth step, we make comparisons with pairs of stakeholder groups. The results are shown in Table 4.

Table 4

**Comparisons with respect to “Project” groups of Stakeholders**

Cluster	ADM	PPI	PEI	ECO
ADM	1	3	3	5
PPI		1	1	3
PEI			1	3
ECO				1

Source: Authors' own calculations in Super Decision

Administration stakeholders group is three times more important to project than Participants - personal interest group of stakeholders (PPI). The same relation is between Administration stakeholders group and Participants - economic interest group of stakeholders (PEI). But Administration stakeholders group is five times more important than Ecologists stakeholders group (ECO). PEI and PPI stakeholder's groups are the same important for project, but they are three times more important than Ecologists. This small relative importance of Ecologists will be amplified by they influence on politicians, media and local government. Inconsistency ratio is equal here to 0.016.

Then as sixth step, we perform paired comparisons on the stakeholders within each cluster. As an example we present in table 5, comparisons with respect to eco element (Ecologists) two elements in Administration stakeholders group (ADM), namely Politicians (p) and Local government (lg). They have the same importance for Ecologists, so inconsistency ratio is equal to 0.00.

Table 5

**Comparisons with respect to *eco* element in “ADM” cluster**

Elements	p	lg
p	1	1
lg		1

Source: Authors' own calculations in Super Decision



Comparisons similar to presented in Table 5, were used to construct the initial supermatrix. Weights are from groups comparison. Then, using method presented in equation (2), limited supermatrix was computed in Super Decision software. Columns represents priorities of stakeholders. They are presented in Table 6.

Table 6

<b>Priorities</b>	
<b>Stakeholders</b>	<b>Priorities</b>
lg	0.088604
p	0.062416
ma	0.045655
li	0.045655
ea	0.045655
lc	0.032908
as	0.021837
lu	0.021837
md	0.033215
in	0.030863
lb	0.035363
aep	0.014558
com	0.017819
cr	0.014558
sup	0.017819
eco	0.034134

*Source: Authors' own calculations in Super Decision*

As we expect, relative small importance of ecologists has been amplified by they influence on other stakeholders.

### **Conclusions, proposals, recommendations**

The paper presents the use of the ANP method for modeling the structure of stakeholders and determining their impact on the project. The real environment of mining projects was considered, identifying the main stakeholders in it. The numerical example presented later was used to show the ownership of stakeholder structures. Through internal connections, a seemingly irrelevant stakeholder can have a significant impact on the project. The ANP method is appropriate to capture such dependencies. Unfortunately, with the numbers of stakeholders considered in contemporary projects, the use of the ANP method becomes cumbersome, due to the large amounts necessary to perform pairwise comparisons.

We see the possibility and necessity to simplify the ANP method for use in projects, to determine the strength of stakeholder influence.



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## **RESIDENTS' ATTITUDES TOWARD URBAN DEVELOPMENT PROJECTS: THE CASE OF BUDAPEST**

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### **Abstract**

Urban renewal and inner city regeneration though are considered as necessary for progress and development often share stakeholders, especially communities, residents in the area concerned. Regardless of the stage of a project, involving stakeholders in the planning and implementation and distributing the appropriate information can create a supporting environment for the investment. Some authors also believe that community participation, although might be problematic, generally contributes to the success of the project.

This paper presents the results of a research that analyses the attitude of the community towards urban renewal projects. In our quantitative research we map the most common problems that usually arise during each urban development project, and grouped the respondents based on their attitude toward such investments.

The article closes with recommendations for communication and collaboration strategies tailored to the individual characteristics of the above groups.

**Keywords:** *urban renewal projects, project communication, attitude research*

**JEL code:** M39

### **Introduction**

Urban development is the series of activities supervised and controlled by the public sector, with the purpose to establish consolidated urban spaces. Urban development is basically defined by the common desire of creating a nice, healthy (hygienic), and convenient urban environment. (Bajnai, 2011) While throughout the process of urban planning, the cityscape is being altered, an important consequence of this is that the realized developments boost entrepreneurship amongst those who live and are active in the neighborhood, they contribute to competitiveness and strengthen the will of cooperation of the involved parties. (Noworól, 2017)

If we understand that urban development is a means to strengthen the public sector in order to improve the quality of life of communities with the goal to have the various projects integrated within the frame of a complex, coherent and coordinated plan, than it becomes obvious that it cannot be implemented without the involvement of the communities and residents who live there. The fact that the interest and motivations of the various involved parties (government, local government, civilians, residents, representatives of the private sphere) could differ significantly represents a serious challenge. These different motivations can only be balanced if a cooperation between the affected parties is implemented already in the early stages of the projects, and it accompanies the phases of planning and implementation as well.

Besides general ideas, this study presents the opinion and attitudes of the involved parties, primarily of residents on the potential and existing cooperation/involvement through an actual project, the Városliget project at Budapest.



### **The definition and concept of urban development**

The revitalization of urban spaces is a central issue in Hungary as well, just as it is in other, strongly affected, less developed Eastern-European regions. (Noworól, 2017)

Experts and academics are researching a number of aspects of urban development projects (UDP). Besides their political, social, ecologic and health-related importance, one key objective of urban development projects is to increase the competitiveness of the town, or on a larger scale, of the region. In terms of the four dimension strategy introduced by Piskóti (2006), the infrastructural investments realized as the first stage of economic development and the rehabilitation of certain areas create the foundation for the elaboration and implementation of further economic development measures. Such measures include the exploration of directions of innovation based upon existing strengths, the creation of a knowledge base with the utilization of R+D potential, and the support of functional (education, services etc.) economic development endeavours. (Piskóti, 2006)

Therefore the issue is not only relevant solely from the point of view of economic development and competitiveness. An endless number of researches have proved that these projects have a direct and indirect impact on the quality of life of those who live there or use the space (for work or recreation purposes, tourists etc.). Out of the number of negative impacts of improperly executed projects, we must note the problem of the shrinking of green areas, and its consequences on health (Takano et al., 2002), the depopulation of certain areas/districts, the impact of the rise or fall of property prices, which could even transform the labour market of that particular area indirectly.

In order to avoid urban development becoming a confused totality of isolated projects, rather a process implemented along a coherent principle, settlements create urban development concepts. An urban development concept is a study building upon the environment, society and economic related attributes of a settlement, which determines the directions for a longer period, a term exceeding ten years. (Bajnai, 2011)

The method of urban planning is also analysed frequently. A key issue is the question whether a particular area should be renovated or totally reconstructed for the purpose of rehabilitation. C.W. Ho and co-authors (2002) examine it from the aspect of reconstruction (redevelopment) or renovation (building rehabilitation). The case study from Hong-Kong presented by the authors sheds light on the relevance of the opinion of involved parties regarding the examined revitalization projects.

The literature written in this topic differentiate the concepts of urban development and real estate development: while the former refers to a large area – part of town, the latter is a project at a well-defined location affecting one or a few real estates. (Bajnai, 2011)

The projects implemented throughout the process of urban development basically focus on the development of public utilities, infrastructure, land transformation tasks, green areas, the construction and renovation of public facilities (education, culture, health institutions) and apartment buildings. (Bajnai, 2011) The limited financial and other resources on the other hand allow for quite tight budgets for these projects, the majority of developments focus on areas which have a direct impact on increasing the quality of life, thus purposes related to transportation, habitation, environment, health, decreasing the level of pollution are becoming more important. These objectives are also reflected in the indicators of measurement methods regarding urban development as well. It is an interesting fact that smart city projects only emerge in the relation of large-scale public service developments, and it is only specified as an individual development goal in a very few cases. (Kun, 2016)

Obtaining resources for these projects is therefore a key issue for urban development. Local governments can increase their tight budgets by involving the private sector, while in case of large scale projects the central budget, or EU tenders could be used to cover the costs. Besides the numerous advantages of cooperation, it might be difficult to balance the possible contradicting motivations, the serving of public interest, political interests and profit orientation.



## **The post-modern trend of urban development**

Jane Jacob established the concept of orthodox urbanism in the sixties, as an opposite of the vivid, interesting and inspiring urban development network. The spread of the creative city concept dates from here, though it took three more decades from the idea to become generally known. By the mid of the nineties, urban planning has also become a marketing issue. The image of the city as the subject of marketing was created as the result of classic product planning and positioning tasks. The task of urban marketing is to introduce the physical and cultural values of the settlement, and the communication of a certain imagined, appealing lifestyle in order to trigger emotional attachment from consumers, whether they are tourists or the people who live there. According to certain researchers, the practice of creative urban development – within the frame of a neoliberal economic policy – targeted the well-capitalised, elite and upper-middles classes. (Egedy, 2017)

Neoliberal urbanism, or the concept of creative urban planning has a number of negative consequences. Research groups have analysed the negative consequences of the concept in relation to thirteen European projects for many years (Swyngedouw et al, 2002). The authors have defined – amongst other things – the below general problems:

- The realized projects were used as an instrument with the purpose to present exceptional results both regarding planning and implementation.
- The democratic involvement of local parties in the projects analysed was not implemented or only in a very formal manner, which resulted in the escalation of the elite's interest.
- The projects fitted less into the wider aspects of urban planning concepts.
- The presented projects strengthened the socio-demographic polarization of the involved areas, by altering real estate prices.

From the nineties, the theory of smart cities has been developed in parallel with the concept of creative cities. Smart cities are cities which utilize the available technologic innovations in order to establish a better, more diverse and sustainable urban environment. (Lados, 2011) The smart city concept stands on three pillars: sustainability, efficiency and wide-scale participation. (Egedy, 2017)

## **Public participation**

The process of implementation is different in each case, the nature of the project defines the institutional background, and the frames of cooperation between the involved parties: public authorities, entrepreneurs, representatives of the private sector and other partners. Certain social contracts must be considered throughout the process, such as:

- Organizations supporting entrepreneurs and businesses who operate at the area
- Informal social groups
- Local leaders
- Organizations supporting non-governmental cooperation and the creation of networks (Noworól, 2017)

The transformation of the social environment (the increasing complexity of problems, the shift in public thinking, the elevation in the level of qualification, the ability to express thoughts, etc.) and the alteration of technologic conditions (accessibility of information, the organizational power of social media etc.) have fundamentally transformed the perception and attitude towards urban development projects. The eight-step model of Arnstein (1969) introduces the possible levels of involvement from manipulation caused by the lack of information to joint decision making and active participation. (Fig 1) The level of involvement is naturally strongly influenced by the level of social and cultural development in that particular country. (Enserink-Koppenjan, 2007)

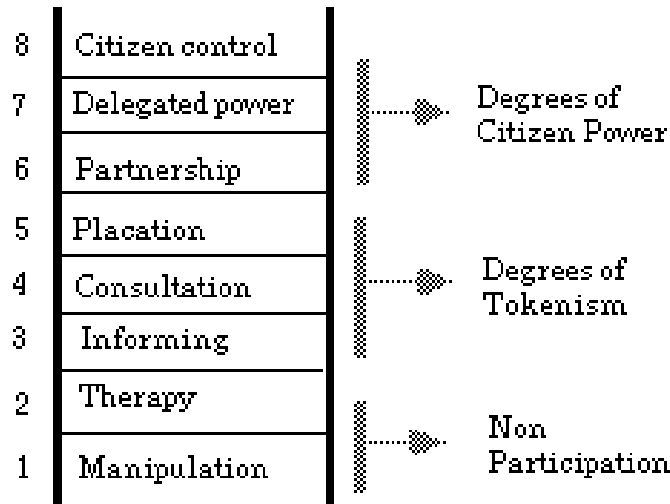


Figure 1 The ladder of citizen participation (after Arnstein, 1969)

The author himself also draws the attention on the defects of the model and the possible disadvantages of community involvement, such as: the support of separatism, a deteriorating efficiency paired with higher costs, the fact that community involvement enables the opportunist behaviour of minorities, and is not compatible with centralized, professional management systems (Arnstein, 1969)

Still, according to European norms, today we must consider the opinion of communities regarding urban development projects, otherwise those will be heard in an informal manner, allied with opposing political powers, and in many cases in a destructive form, just as it had happened in case of many projects in Budapest.

### Urban planning in practice – Budapest, Liget project

As the capital of Hungary, Budapest plays a crucial role both from an economic and a social aspect. It is also a significant city in the Eastern-European region, along with Bratislava and Vienna, and an important hub in the European transportation network. Budapest’s urban planning concept attempts to create a harmonic, balanced city, which can only be realized with the coordination of organic and planned growth and development.

The thorough analysis of urban planning projects revealed that there about 100 projects which are finished, in process or in the planning phase in the area of Budapest. The majority of these are concentrated in the historic part, near the Buda castle, Heroes’ square (Liget project) and the Kossuth square. Of course there are developments which are finished or to be realized outside this area, in the neighbourhood of the Northern Danube gate (Water Sport World Championship) and the Southern Danube gate (Olympic Centre, MÜPA etc.), and other separate investments which are less fitting in the city network. (Gál, 2017)

The Liget Budapest project is a key government investment worth about seven hundred million euros, which is being implemented at the most significant green area of Budapest, the 200 year old Városliget. A central element of the development is the establishment of the Museum Quarter, along with the increasing of green surfaces, as communicated by the project managers. With the demolition of many buildings, the



renovation of four buildings and the construction of five new complexes, the proportion of built-up areas will grow from 5% to 7%, while the proportion of green surfaces increases by 6%.(link) Construction has started two years ago, and a number of ancient trees had become victims of the works, the major part of the Városliget is still a construction area. The project managers of Liget Budapest had held discussions with civil organizations on four forums, but there was no substantive dialogue, resulting in many confrontations with the objecting civilians throughout the implementation.

A survey was conducted in 2016 amongst residents of Budapest regarding the Liget Budapest project. The results of the survey of Sonda Ipsos on a representative sample of 500 showed that 75% of respondents were against the construction of new buildings in the Városliget. According to the survey of Medián Opinion and Market Research Institute also on a sample of 500 concluded that residents of Budapest believed that maintaining the public park nature of the area, and its rehabilitation without construction would be a better idea, with a much lower budget.

Therefore one might wonder how residents of Budapest perceive their own role in relation to urban development projects in general, and how they feel about the actual project outlined above.

## **Methodology**

Accepting the results of previous researches, this analysis focuses not primarily on concrete opinions on the Liget Project, but on general attitudes towards urban development. Based on the overview of the literature, taking into account the research results and the trends occurring in general community participation, the following hypotheses can be formulated.

H1: It can be assumed that the opinions on urban development are characterized by overall dissatisfaction. The level of satisfaction with each type of previously completed or ongoing development is lower than average.

H2a: Both in general and in relation to the specific project, the respondents perceive some negative aspects of neoliberal urban development.

H2b: Respondents perceive that the realization of urban development projects is not/or not always in the communities interest and there is a lack of meaningful participation opportunities.

H3: Attitude components appear in relation to urban development projects. It can be assumed that the affect-behavior-cognition distinction defined by the tripartite model of attitude structure (Rosenberg-Hovland, 1960) can be presented through factor analysis.

In the questionnaire statements have been determined about urban development in general and concerning the concrete Liget Budapest project. Respondents' opinions were examined using a five-level Likert-type scale.

The city belongs to all of us, irrespective of age, gender, place of residence and income, so the sampling population is therefore quite heterogeneous. Using a convenience sampling procedure our questionnaire was sent online to the interviewees. Although young respondents with a higher education are overrepresented in the sample, less educated and older respondents appear. However, research is not representative due to the sampling method. The composition of the sample is shown in Table 1.





Table 1

**Distribution of the sample**

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	74	41,2	41,2	41,2
	Female	106	58,8	58,8	100,0
Type of residence	Buda	28	15,6	15,6	15,6
	Pest	114	63,3	63,3	78,9
	Other	38	21,1	21,1	100,0
Age	18-27	110	61,1	61,1	61,1
	28-39	26	14,4	14,4	75,6
	40-55	36	20,0	20,0	95,6
	55+	24	4,4	4,4	100,0
Education	Secondary	96	53,3	53,3	53,3
	Higher	84	46,7	46,7	100,0
Total		180	100,0	100,0	

*Source: by the author based on primary research*

**Results**

Opinions on each development types are listed in Table 3. The results support the preliminary assumption that respondents are generally dissatisfied with the developments that have been implemented in Budapest. Respondents are most satisfied with the projects implemented in connection with sports and recreation, while the results show a significant dissatisfaction caused by lack of healthcare related investments.

Table 2

**Opinion on development categories**  
**Descriptive Statistics**

	N	Min.	Max.	Mean	Std. Deviation
Q2.6 Public sports and recreation related investments	176	1,00	5,00	2,9773	1,25008
Q2.7 Construction and renovation of residential buildings	172	1,00	5,00	2,9651	1,13187
Q2.4 Culture, education and science related development (e.g. museum, theatres, schools).	176	,00	5,00	2,8182	1,22751
Q2.8 Smart City Projects (e.g. WIFI Coverage, Digital Information Systems)	170	1,00	5,00	2,7176	1,24987
Q2.3 Development of green and recreational areas	180	,00	5,00	2,6667	1,26313
Q2.1 Development of public utilities and infrastructure (road network)	176	1,00	5,00	2,6591	1,10262
Q2.2 Land conversion	178	1,00	5,00	2,5385	,96285
Q2.5 Public healthcare-related investments	172	1,00	5,00	1,6512	1,04900
Valid N (listwise)	69				

*Source: by the author based on primary research*



Respondents are rather satisfied with the directions of development in general (Average: 3.29; Standard deviations: 1.06259) and the Liget project is thought to be a development that fits in the city's identity. (Mean: 2.96; Standard deviation: 1.19232). Though examining the relationship between the overall satisfaction and the positive judgement of this specific project, correlation between the two variables cannot be demonstrated. Based on the Pearson Half Chi-square test ( $\chi^2 = 24,640$ ;  $df = 16$ ;  $p > 0.05$ ) it can be stated that general satisfaction and the judgment of a particular project are not interdependent. The disadvantages of the neo-liberal urban development concept, however, are perceived by respondents both in general and in relation to the specific project. (Table 3)

Table 3

### Opinion on participation related statements

#### Descriptive Statistics

	N	Min.	Max.	Mean	Std. Deviation
Q1.8 In my opinion, developments do not serve to improve the quality of life of people concerned (residents, employees, companies, etc.)	172	1,00	5,00	2,9070	1,23315
Q1.7 I think, development projects are implemented with the support of stakeholders (residents, local companies, civilians, etc.)	166	1,00	5,00	2,4337	1,11741
q.6.6 The interests of the community are more prevalent, not the profit expectations of some stakeholders	158	1,00	5,00	2,2658	1,37476
Q6.7 The Liget project owner takes into account the opinion of the residents	162	1,00	5,00	2,0617	1,12189
Valid N (listwise)	57				

*Source: by the author based on primary research*

As the attitude statements have been determined by ourselves, we used Cronbach alpha to test the reliability of the model. The result obtained (Cronbach's Alpha = 0.710 > 0.7) supports the internal consistency of the scale. According to the test result the removing of any factor reduces reliability; that means the model appropriately captures the topic.

Based on the reliability test, it is advisable to include all variables in the factor analysis. The KMO value obtained during the run is 0.711, which means that variables are suitable for factor analysis. During the analysis, main component analysis and Varimax rotation method were used and the three factors thus formed together account for 59.34% of the total variance, which is just below the minimum of 60% defined in the literature (Sajtos-Mitev, 2007).

The factors and the explanatory power of the individual components are shown in Table 4.



Table 4

**Results of factor analysis  
 Rotated Component Matrix<sup>a</sup>**

	Component		
	Factor 1	Factor 2	Factor 3
Q1.2 The city is developing in a good direction	0,853	-0,167	0,071
Q1.1 I believe Budapest is a viable, European scale city	0,828	0,011	-0,055
Q1.3 I believe that urban development projects are implemented as part of a long-term strategy	0,812	-0,224	0,06
Q1.11 In my opinion, internationally renowned events (cultural, sport) are important for urban development	0,632	0,03	0,193
Q1.4 I think that the rehabilitation and improvement of public spaces and public buildings restrain other job-creating investments	0,017	0,792	-0,151
Q1.9 I think that during planning and implementation the project owner should consider the views and opinion of stakeholders (even within the framework of a referendum)	0,167	0,597	0,329
Q1.7 In my opinion, development projects are implemented with the support of stakeholders (residents, local companies, civilians, etc.)	0,387	-0,522	0,259
Q1.10 In my opinion, the main aim of urban development is to make Budapest a more attractive tourist destination	0,489	0,147	0,571
Q1.5 I consider the subject of urban development important to me	0,146	-0,16	0,487

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

Source: by the author based on primary research

The obtained factors do not exactly reflect to the three components of attitude described in the literature. Based on the related statements, the following factors can be defined.

F1: First to appear is the dimension of *"desires and promises"*. The factor comprises statements that express general expectations and ideas about urban development.

F2: The *"expectations and responses"* factor reflects to the practices that are relevant to the realization of the developments. The related statements depict a supportive involvement form both participating parties, whether project owner or community representative.

F3: A *"participation and responsibility"* dimension can also be identified. The third factor, compiles the claims regarding the individuals' and community's involvement and participation.

## Conclusions

Attitudes are difficult to measure, yet they have strong impact on our consideration and behaviour. One's attitude is usually based on partial information, internal beliefs and external impulses, both in our buying decisions or our perceptions of the near environment. In this article, we aim to analyse attitudes toward to urban development projects. Based on the results



of the research, all the three hypotheses can be accepted. The results of the research, due to the relatively small sample size and the lack of representativity, can only be accepted with certain limitations, but they can provide an interesting input for further researches.

Indeed, the city belongs to all of us. Though the benefits of urban developments can be directly enjoyed by the stakeholders (residents), they are quite uninformed about the topic.

Although participation is a hot topic both in literature and practice, and based on the research it is considered as important for the respondents as well, the low level of consciousness questions the real effectiveness of involvement.

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## **PROJECT MANAGEMENT AT TOP BUSINESS SCHOOLS**

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### **Abstract**

If we summarize what all companies and organizations around the world do, we can state that they perform two types of activities: they execute processes to produce, sell, and distribute products and services, and they implement projects to ensure that the organization survives and keeps growing in the mid and long term. Based on this reasoning, leaders, such as managers and executives, should possess process and Project Management competencies. Many current and future managers and executives go to learn the skills needed to lead a business at Business Schools. In fact, Business Schools are particularly relevant as they are well known for creating the next generation of leaders and for strengthening the competencies of existing leaders. The main question is: are Business Schools teaching Project Management? Since Business Schools all around the world are almost countless, we decided to focus on top Business Schools. From a methodological perspective, we started by defining and identifying “Top” Business Schools. In order to do that we took the leading sources of Business School rankings as inputs. In particular, we considered global rankings, avoiding regional or national rankings. We listed all the Business Schools present in the rankings and removed duplicates. The final list was made up of 197 Business Schools. We then explored their websites in order to identify and analyze:

- Project Management courses in MBA programs,
- Project Management courses in Online MBA programs,
- Project Management courses in Executive MBA programs,
- Project Management courses in Specialized Masters,
- Certificates in Project Management,
- Open Executives Programs in Project Management

Results indicate that Project Management courses are not very frequent among Business Schools and differences can be found depending on the type of training programs.

**Key words:** *Project Management, Business Schools, rankings*

**JEL code:** *M54*

### **Introduction**

All the companies and organizations around the world do execute processes to produce, sell, and distribute products and services, and they implement projects to ensure that the organization survives and keeps growing in the mid and long term. While most traditional organizations are process-based, it is hard to find an organization that does not perform projects as well.

Yet, over the past decade, organizations have been relying more and more on projects. The reason is quite simple, in fact, access to broader and cheaper information, fierce competition and customer preferences have:

- Shortened product life-cycles by about 25% (Roland Berger, 2012) and 50 percent of annual company revenues across a range of industries are derived from new products launched within the past three years (Inform, 2012), that is, new products become obsolete much faster and ask for replacements or enhancements more frequently.

- Reduced the possibility to have best seller products. The long-tail effect (i.e. sales less concentrated on a few products) has pushed for an increase in the product variety, which is more than doubled in the past 15 years (Roland Berger, 2012).



As a result, new products or services have to be developed more frequently and processes have to be improved and updated (significant process improvements, such as digitalization, or business model transformation, represent huge transformation projects) more often as well.

The bottom line is that organizations perform more project compared to the past and not having the competencies to successfully manage projects can be detrimental to the current performance and to the ability of the organization to succeed in the long term. As pointed out by many authors (Archibald and Archibald 2015, West 2010, Englund and Bucero 2006, Love and Love 2000, Pinto and Slevin, 1988), project success is not only influenced by Project Managers and Team Members but also from middle and top management roles who can support projects acting as project sponsors or can design an organization that supports the proper management of projects. Based on this reasoning, leaders, such as managers and executives, should possess Project Management competencies. Many current and future managers and executives go to learn the skills needed to lead an organization at Business Schools. In fact, Business Schools are particularly relevant as they are well known for creating the next generation of leaders and for strengthening the competencies of existing leaders. The main question is: are Business Schools teaching Project Management?

### **The research method**

Since the number of Business Schools is too big for a study to consider all of them with the available resources (Wikipedia lists more than 400 Business Schools in the US, more than 250 in Europe, more than 400 in Asia) it has been decided to focus on the most relevant ones. In the Business School sector relevancy is measured by some organizations which compare and rank them. The vast majority operates at the national level while a few provides worldwide analysis. For this research the most famous international rankings have been used to identify what we defined “Top Business Schools”. In particular, the following rankings have been considered: Financial Times Open Enrolment Ranking 2016, Financial Times Global MBA Ranking 2016, Financial Times Executive MBA Ranking 2016, Financial Times Online MBA Ranking 2016, The Economist Executive MBA Ranking 2016, Bloomberg Full Time International MBA Ranking 2016. The analysis frameworks adopted by the different subjects vary depending on the programs to be ranked. However, for similar programs, such as the MBAs, frameworks are not very different since they take into consideration variables internal to the Business Schools (for example percentage of professors with a PhD degree, percentage of international Faculty and students, percentage of woman etc.), the satisfaction of the participants, the satisfaction of the employers and the salary increase.

In this study, Business Schools have been considered “Top” when they were mentioned at least in one of the above mentioned rankings. Of course this criterion is subjective, other criteria may apply (for example being listed in at least two rankings). The rankings we considered evaluate programs and not Business Schools, in case a program is jointly delivered by more than one Business School, all the partner Business Schools have been inserted in the list.

While conceptually easy, creating the list required a good deal of effort since every ranking uses slightly different names for the same Business School.

As a result, the final list was composed of 197 Business Schools. Once the final list had been created, data had been collected by looking at the websites of all the Business Schools in order to find Project Management contents in the following programs:

- MBA,
- Online MBA,
- Executive MBA,
- Specialized Masters,
- Certificates,
- Open Executives Programs.

Data had been collected between November 2016 and February 2017.



In the next section of the paper, data related to each program will be provided.

**Research results and discussion**

MBA

Out of 197 Business Schools, 180 of them (91%) offer MBA programs. Sometimes Business Schools run more than one MBA program, for example, in some cases MBA are focused on specific topics, such as IT, construction, marketing or they have different formats such as full time or part-time. Based on that the 180 Business Schools offer a total of 379 MBAs. Out of 180 Business Schools, 45% (81) include Project Management contents in their MBAs while out of 379 MBAs, 35% (134) of them have Project Management contents. Since some MBAs have more than one course focused on Project Management, if we count the number of Project Management courses delivered in the 379 MBAs, the result is 181.

Table 1

**Project Management contents in MBA programs**

	N
Business Schools	197
Business Schools offering MBA	180
MBA	379
Business Schools with Project Management contents in their MBA	81
MBA with Project Management contents	134
Project Management courses in all MBA	181

Source: *Authors' construction*

Normally MBAs are organized into Core and Elective courses. Elective courses are the ones chosen by a student from a number of optional subjects or courses in a curriculum, as opposed to a required (Core) course, which the student must take. By using this classification, it emerges that 8% (15 out of 181) are Core courses while 80% (145 out of 180) are Elective. Unfortunately, it was not possible to classify 21 courses since there was no explanation whether they were Core or Elective.

Table 2

**Project Management as Core or Elective course**

	N
Core course	15
Elective course	145
NA	21

Source: *Authors' construction*

By considering the type of contents delivered, 53% (96 out of 181) of the courses seem providing general Project Management skills. The verb “seem” has to be used because no detailed syllabus are provided on the websites and for this reason the classification is only based on the course title. It also seems that focusing on specific sectors (IT, construction) or issues (Project Management for Innovation or for R&D) is another frequent option, probably derived from the type of MBA (MBA with focus on IT, Construction etc.) or the dominant job offers resulting from the connections that particular Business School has with the companies.



Table 3

**Type of contents in Project Management courses**

	<b>N</b>
Sector/Issue (IT, Construction, Innovation etc.)	37
Project Management (general)	96
Focus on specific methodologies (quality, risk, schedule, procurement)	23
Strategic Project Management (program, portfolio, executive etc.)	12
Soft Skills	13

Source: *Authors' construction*

If we consider the perspective of the people who think that Project Management should be part of the MBA curriculum, we have mixed results. On one hand, 45% of the MBAs include Project Management contents, and, while there is room for improvement, the percentage cannot be considered low, on the other hand, the vast majority of Project Management courses are offered as Electives, in this way there is no certainty that MBA participants gain Project Management competencies.

Online MBA

Online MBAs are much more recent compared to MBAs, in fact, only in 2014 Financial Times started to rank them. The shorter history of Online MBAs together with the fact that not all the Business Schools are interested in offering online programs, bring to a pretty limited number, in fact, only 13% of the Business Schools offer Online MBAs. The percentage of Business Schools with Project Management contents in their Online MBAs is very similar to the “traditional” case, in fact, here the percentage is 41% against 45% of the MBAs. Also in this case, some Business Schools run more than one MBA, so that the total number of Online MBAs is 31, among them, 42% (13 out of 31) provide Project Management contents, slightly higher than the MBAs (35%).

Table 4

**Project Management contents in Online MBA programs**

	<b>N</b>
Business Schools	197
Business Schools offering Online MBA	26
Online MBA	31
Business Schools with Project Management contents in their Online MBA	11
Online MBA with Project Management contents	13

Source: *Authors' construction*

Similarly to the MBAs, also in this case the vast majority (92%) of the Project Management courses are delivered as elective.





Table 5

**Project Management as Core or Elective course**

	<b>N</b>
Core course	1
Elective course	12

Source: *Authors' construction*

Executive MBA

Compared to MBAs and Online MBAs, Executive MBAs (EMBA) are targeted to people that are more senior. The majority of EMBA programs recorded in the QS TopExecutive statistical review report the average age in their classrooms as being 37 while for MBAs is around 28 (Financial Times, 2013). Out of 197 Business Schools, 172 of them (87%) offer EMBA programs, a slightly lower percentage compared to MBAs (91%). As per MBAs, sometimes Business Schools have more than one EMBA program, in fact, the 172 Business Schools offer a total of 248 EMBA programs. Only 14% (24) Business Schools include Project Management contents in their EMBA programs, a percentage much lower compared to MBAs (45%). The percentage slightly decreases when programs, and not Business Schools, are taken into account, in fact, out of 248 EMBA programs, 12% (29) of them have Project Management contents, again, much less compared to MBAs (35%). Since some EMBA programs have more than one course focused on Project Management, the total count of Project Management courses delivered in the 248 EMBA programs is 37.

Table 6

**Project Management contents in EMBA programs**

	<b>N</b>
Business Schools	197
Business Schools offering EMBA	172
EMBA	248
Business Schools with Project Management contents in their EMBA	24
EMBA with Project Management contents	29
Project Management courses in all EMBA	37

Source: *Authors' construction*

Again similarly to MBAs, the majority of Project Management courses (65%) are not mandatory since they are offered as electives.

Table 7

**Project Management as Core or Elective course**

	<b>N</b>
Core course	5
Elective course	24
NA	8

Source: *Authors' construction*

Also in this case, the most frequent title is simply Project Management but since syllabus are not available online, it is not possible to evaluate whether contents targeted to executives



(such as strategic Project Management, project portfolio management, being an effective project sponsor) are provided.

Table 8

**Type of contents in Project Management courses**

	N
Project Management	25
Others	12

Source: *Authors' construction*

While for MBAs and Online MBAs the overall situation could be considered promising, the presence of Project Management contents in EMBA programs cannot be regarded as such. As it will be discussed in the conclusions, it seems that Project Management is still struggling to enter the management agenda.

Specialized Masters

While MBAs and EMBA are general management programs, specialized masters are focused on specific topics (marketing, finance, strategy, IT, HR management etc.) and normally have a shorter duration. 55% of the Business Schools offer specialized masters and since many Business Schools run more than one master, the total number top 788. When it comes to considering how many Business Schools include Project Management contents in their specialized masters, the percentage (42%) is very similar to the MBAs while if we take into consideration the number of specialized masters with Project Management contents the percentage drop to 11%. Again, some masters provide more than one Project Management course, for this reason, the total number of Project Management courses increases to 122. The low percentage of masters with Project Management contents is partially explained by the fact that these type of programs try to limit general management skills in order to stay focused on their specific specializations. Among the masters, 6 are focused on Project Management and those 6 are provided by 5 Business Schools, that is, a Business School offers 2 Specialized Masters in Project Management.

Table 9

**Project Management contents in Specialized Masters**

	N
Business Schools	197
Business Schools offering Specialized Masters	108
Specialized Masters	788
Business Schools with Project Management contents in their Specialized Masters	45
Specialized Masters with Project Management contents	87
Project Management courses in all Specialized Masters	122
Business Schools that offers Specialized Masters in Project Management	5
Specialized Masters in Project Management	6

Source: *Authors' construction*

The percentage of mandatory courses (23%) is much higher compared to MBAs and EMBA, however, it has not been possible to assign one of the two categories (core and elective) to many Project Management courses since the information was not available online.



For this reason the percentage is probably underestimated. If we consider the courses for which a classification was possible, the percentage rises to 42%.

Table 10

**Project Management as Core or Elective course**

	N
Core course	28
Elective course	39
NA	55

Source: *Authors' construction*

The explanation can be two-fold: on one hand Project Management could be considered very important and so it should be a core course, on the other hand specialized masters, apart some exceptions, are normally targeted to pretty young students and the strong presence of Project Management among the core courses may reinforce that idea that Project Management is for low level managers and not for executives.

Certificates

Certificate programs are designed to give students mastery over a narrow subject area or topic. These programs are offered in many trades, professional fields, and academic areas. Certificate programs are generally geared towards adult students and students looking for short-term training leading to immediate employment. These non-degree programs are usually provided at two main levels: undergraduate and graduate.

Among the 197 Business Schools, 24% offer Certificates and since very often Business Schools have more than one certificate, the total number rises to 238 of which 5 focused on Project Management. While we did not expect to find many Business Schools offering Certificates, our expectation was to find more Certificates on Project Management, since:

- The time required to cover the main Project Management topics has a good fit with the duration of a certificate, which is often longer than one month but normally less than a Master.
- Certificates are normally focused on practice e with strong connections with the job market. Being Project Management a typical topic build around practice and in strong demand from the job market, it seemed that Certificates and Project Management was a good pair.
- Many Business Schools offer Project Management in their MBAs and it seemed reasonable that if they have the competencies to run Project Management courses, they could leverage those competencies by building a specific commercial offer around them.

Table 11

**Project Management contents in Certificates**

	N
Business Schools	197
Business Schools offering Certificates	48
Certificates	238
Business Schools with Certificates in Project	5
Certificates in Project Management	5
Business Schools with Project Management contents	7

Source: *Authors' construction*



Open Executives Programs

Open Executive Programs are normally short duration programs (days) focused on a single and very specific topic. 75% of the Business Schools offer Open Executives Programs, among them, 23% have Open Executive Programs on Project Management and since some Business Schools run more than one course on Project Management, the total number of Project Management courses is 81.

Table 12

<b>Project Management contents in Open Executive Programs</b>	
	<b>N</b>
Business Schools	197
Business Schools with Open Executive Programs	148
Business Schools with Open Executive Programs	34
Project Management Open Executive Programs	81

Source: *Authors' construction*

Interesting is to note the distribution of such 81 courses: while 22 Business Schools offer one course, 5 Business Schools offer a total 44 courses, more than a half of the overall offering.

Table 13

<b>Number of Project Management courses provided</b>	
	<b>N</b>
1 Project Management course	2
2 Project Management courses	5
3 Project Management courses	1
4 Project Management courses	0
5 Project Management courses	1
6 Project Management courses	0
7 Project Management courses	2
8 Project Management courses	1
9 Project Management courses	1
10 Project Management courses	1

Source: *Authors' construction*

The explanation is twofold:

- some Business Schools have many Open Executive Programs (more than 100) and so there is the opportunity to run very specific courses on different Project Management aspects;
- some Business Schools have developed a pretty strong Project Management competence center and their commercial offering represents those competencies.

However, similar to Certificates, even though to a lesser extent, we expected more Business Schools offering Open Executives Programs focused on Project Management.

**Regional analysis**

The analysis at the regional level is influenced by the fact that some Business Schools have subsidiaries in more than one region, however, their number is very limited and, for this reason, the overall results are not affected.

Since MBAs and EMBA are programs offered by the vast majority of the Business Schools and the programs aim at developing managers and executives, we will focus on them to appreciate if there are differences at the regional level.



Table 14

**Project Management courses in MBAs and EMBA's by Region**

<b>Region</b>	<b>Percentage of BS PM course in their MBAs</b>	<b>Percentage of BS with PM courses in their EMBA's</b>
Africa	60% (3/5)	0% (0/4)
Asia	38% (9/24)	4.5% (1/22)
EU	40% (23/58)	25% (15/60)
Middle East	50% (1/2)	0% (0/2)
North America	48% (39/82)	9% (6/69)
South America	20% (2/10)	18% (2/11)

Source: *Authors' construction*

Given the limited number of Business Schools in Africa, Middle East and South America, percentages are not significant from a statistical perspective and for this reasons they will be not commented. Interesting is noticing a certain homogeneity of the diffusion of Project Management among MBA programs, in fact, Asia and Europe show very similar results but also North America is not very different. However, when it comes to EMBA's, the presence of Project Management contents greatly varies. As already mentioned when comparing EMBA's and MBAs, there is an overall reduction of the presence of Project Management courses but in Europe the reduction is much more limited compared to Asia and North America. In Asia, Project Management courses almost disappear at the EMBA level since just one Business School offers them while in North America there is a drop of 39%. We do not have a compelling explanation for these results but to notice two different models when it comes to Project Management at EMBA's: the European model seems considering Project Management suitable for EMBA's as well while the Asian and North America model seems neglecting its importance for executive roles.

### Conclusions

As mentioned along the paper, given the importance of Project Management to achieve positive business results, the diffusion of Project Management among the top Business Schools does not seem satisfactory.

A first interpretation is related to competition and price. Business Schools with good standing, in fact, when compared to other training providers, are much more expensive and in some cases the difference can be bigger than one order of magnitude. In addition, the offering of Project Management courses, both face-to-face and online, is big. This can decrease the interest of the Business Schools to invest in Project Management since the competition is fierce and it is unclear whether customers are willing to pay a big premium price for course that, at least on paper, have similar contents.

A second interpretation is that participants might already have Project Management skills and competencies. However, based on the authors experience in teaching Project Management to Specialized Master, MBA and EMBA students at some of the top Business Schools, this was the true in roughly 15 to 20% of the cases. The vast majority of the participants we have taught over the past ten years have never learnt the techniques and behaviours to lead projects successfully. Most have been exposed to projects over their careers, and some of them have been intensely exposed to Project Management environments, yet the way the projects were carried out was far from being considered good practice.



A third interpretation is that many participants, at first, do not consider Project Management as a core skill for their career. Based on the qualitative feedback we received from participants, this is quite often the case. In fact, after delivering our Project Management courses, most participants approach us and tell us: “Honestly, before I enrolled for this class I thought Project Management did not fit with what a manager or executive should know, now I understand its relevance”. There are still a few, however, who do not change their minds. What is the source of this misunderstanding? There are probably many reasons, one of which is particularly relevant: too often people think that Project Management is for Project Managers while in reality Project Management is a relevant skill for every person involved in project environments. The origin of this misunderstanding may also derive from the vast Project Management body of knowledge (books, articles etc.), which is almost exclusively targeted at project managers.

A fourth interpretation is that Business Schools are not fully aware of the role that managers and executives play in supporting project leadership and performance. Discussions we had with some MBA and EMBA Directors suggest that they too have a tendency to relegate Project Management to operative or middle management roles. It is no coincidence that many Project Management Professors work in the Operations Department of Universities and Business Schools. Project Management is still too often considered as an engineering, IT or technical discipline, thus neglecting its managerial components and the strategic role that many projects play in transforming the organizations. This interpretation is partially supported by considering the type of Project Management courses delivered. In fact, the vast majority of the courses are simply named “Project Management” while only a few focus on topics relevant for managers and executives (e.g. Strategic Project Management, Project Portfolio Management, Project Sponsorship).

A fifth interpretation is that Project Management is not very interesting for professors working in Business Schools and for this reason they do not try to push Project Management contents in the various training programs. In fact, while many topics taught at Business Schools also fit with Academic interests (there are many Full Professors of Marketing, Accounting, Finance, HR Management etc.), Project Management is only rarely a career path at many Universities and Business Schools. As evidence, there are only a few Full Professors in Project Management worldwide and many Professors who teach Project Management are also (or mainly) focused on other topics, since those other topics may further their careers. To add on this reasoning, if we look at the job offers targeted at Universities and Business Schools, opened positions in Project Management are more for Lectures, which is a non-academic role, than Researchers or Professors.

We think that the proposed interpretations cannot be considered independently each other. Probably an increase of the diffusion of Project Management has to take into account a multi-facet strategy that comprises the way Project Management is communicated both internally and externally, the way it is taught and also who teach it. This last aspect has not been commented so far. We went through the curriculum of many Project Management Lecturers and we noticed that many of them are Project Managers. At first sight this can be good but, if we consider the perspective of participants who want to become managers or executives, this can be a limitation, in fact, it reinforces the idea that Project Management is mainly for Project Managers and Project Management does not support the development of a robust managerial career.

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## HOW TO KILL A PROJECT BEFORE IT KILLS YOU, AND SURVIVE TO TELL IT

Suárez T Edgardo, Air Liquide

### Abstract

What happens when a project is raised out of very good reasons and intentions, but the timeline puts it in the midst of other major efforts that would come at the same time?

Are you as a project manager obliged to just run the project as directed? or Do you have the obligation to stop it if you see the risks to be high? Or at least, Do you have the obligation to bring up the risks and let others decide?

What exactly is your obligation and how do you carry it out?

We will present a real case of one such project, one that had very good reasons to run and could provide great benefit, it had a deadline to complete (still several months away at the time of the discussions) and given other efforts and projects in the portfolio, it could have resulted in a major body of work at a very high risk that could derail not only this project but the others in the portfolio for the year.

We will present and describe details of the problem project and surrounding context (what other projects and events were in the horizon), how this project was getting coordinated and worked, and the reasons why it was believed to be creating high risks.

We will then describe what actions were taken to best determine if risks were really present, provide quantitative and qualitative data and raise awareness, and ultimately the specific action/s used to help define recommend a direction and a decision to continue or not, and the alternatives provided.

**Key words:** *Project management, project risk, project portfolio, manager duties, manager responsibility, corporate culture*

**JEL code:** *M150, M140*

### Introduction

This paper describes a practical and real life case. It is however anchored in the PMBoK methodology and practical project management practice best practices as well as taking into account the cultural and financial aspects of the organization various stakeholders across various countries and continents.

The case involves a project started to migrate from a data centre into another from the same provider, which was initiated with considerable delay and which at a later point was used to “piggyback” a much larger project to consolidate data centres.

Many of the assumptions initially taken were proven to be incorrect and/or in conflict with the deadlines and timelines in discussion. A major issue was that the lack of consideration of the portfolio of projects and other potential events for the following months and year.

In the opinion of the enterprise architect, the risk of such a project (the consolidation of data centres) was too large to undertake and thus he communicated same to the hub CIO for further discussion and to raise it to a higher level.

Documentation as to the risks and costs, as well as a more sensible alternative were prepared and presented and ultimately, the consolidation project was hold for another time and only the original data centre migration was approved.

Some projects look great in paper, and a more formalized analysis with factual data can result in an entire different outlook.

This paper attempts to describe the dilemma of a PM as to whether he/she blindly runs a project or brings up the risks to stop it before it causes harm to the organization carrying it. With a smaller project, the PM would have a lower level of difficulty in steering to the right direction, the high stakes and visibility on the project we are presenting defines a different dynamic altogether.





We will present and discuss such a case inclusive to the details surrounding the state of affairs within the organization and considerations leading to the decision to hold.

## **Discussion**

### **How it all started**

The original requirement was a data centre migration because the host provider was closing it for becoming obsolete to the needs of a modern data centre, as it was not economically feasible to remodel or retrofit and thus, it communicated to us about 1 year in advance of the closing date in Q3 2016, to migrate all systems footprint to another centre owned by them in a different location.

Host provider offered assistance in the migration in the form of resources, planning, and in some of the costs for the project execution.

New hosts will be stand up where we would move the applications and workloads, which will provide compliance with vulnerabilities as well as consolidation and rationalization of servers and applications. It was known from the very beginning that while much of the new data centre infrastructure would be build, a sizable number of hosts would have to be ‘lift and ship’, which adds logistical challenges.

The closing data centre had a deadline to close and we needed to be completely out of it and up and running in the new data centre at that date.

It is important to note that while the initial communication from data centre host provider was given in Q3 2015, for a closure at end of Q3 2016, no activities were actually done until beginning of Q1 2016; that is, no progress had been made until 9 months before the closure of the old data centre.

In fact, there was no formal project in place nor a project manager assigned/designated; we will see in the next section how an actual project and its scope was only shaping. In this context, while it was clear what responsibilities were at play according to the PMBoK Guide (PMI 2013), it does not provide a specific guidance to help project managers who are involved or related to a situation compromising a project let alone one that is not yet even a project.

The author’s role in the organization is of chief architect, however, he holds a PMP certification and as such is also bound by the PM responsibilities to influence the best outcome for the organization. See responsibilities and skills from PMBoK Guide (PMI 2013), Fig1 and Fig 2 below.



### **1.7.1 Responsibilities and Competencies of the Project Manager**

In general, project managers have the responsibility to satisfy the needs: task needs, team needs, and individual needs. As project management is a critical strategic discipline, the project manager becomes the link between the strategy and the team. Projects are essential to the growth and survival of organizations. Projects create value in the form of improved business processes, are indispensable in the development of new products and services, and make it easier for companies to respond to changes in the environment, competition, and the marketplace. The project manager's role therefore becomes increasingly strategic. However, understanding and applying the knowledge, tools, and techniques that are recognized as good practice are not sufficient for effective project management. In addition to any area-specific skills and general management proficiencies required for the project, effective project management requires that the project manager possess the following competencies:

- **Knowledge**—Refers to what the project manager knows about project management.
- **Performance**—Refers to what the project manager is able to do or accomplish while applying his or her project management knowledge.
- **Personal**—Refers to how the project manager behaves when performing the project or related activity. Personal effectiveness encompasses attitudes, core personality characteristics, and leadership, which provides the ability to guide the project team while achieving project objectives and balancing the project constraints.

Figure 1. **Responsibilities of the Project Manager**

Source: *PMBok Guide (PMI 2013)*

### **1.7.2 Interpersonal Skills of a Project Manager**

Project managers accomplish work through the project team and other stakeholders. Effective project managers require a balance of technical, interpersonal, and conceptual skills that help them analyze situations and interact appropriately. Appendix X3 on Interpersonal Skills describes important interpersonal skills, such as:

- Leadership,
- Team building,
- Motivation,
- Communication,
- Influencing,
- Decision making,
- Political and cultural awareness,
- Negotiation,
- Trust building,
- Conflict management, and
- Coaching.

Figure 2. **Skills of the Project Manager**

Source: *PMBok Guide (PMI 2013)*



### The change of scope (piggyback)

As noted before, only in Q1 of 2016 discussions for a project had started in earnest and one of the main points was to not only execute the data centre migration but instead to do a data centre consolidation from the various data centres managed by the provider into a single one (possibly one where the migration was targeting, but undefined at that point), all by end of Q3 2016, 9 months away!

Initial estimates indicated that should we do a consolidation, the complexity and level of effort would be at least doubled, and additional work was done to fine tune the estimates as well as to define costs and risks.

It is important to note that while the target data centre existed it had not yet been designated production ready; networking (both internal and external as well as building of hosts/VMs had to be done, and in some cases, some infrastructure could not be built and hence had to be moved ('pick and ship').

There was another event announced at same time: the company had initiated an acquisition of a large competitor and it was expected to be completed about July of 2016, with initial integrated operations required at end of Q3 2016 as well.

In the meantime, time was running, and by beginning of Feb 2016, no specific direction had been defined while we were now 8 months to the deadline.

Important to note that at this point in time, there is no formal project yet in place, meaning no specific requirements or activities; the only sure fact was that the deadline of Q3 2016 had not and will not move.

The acquisition and all other projects in the portfolio for the year of course would continue, a few of those projects are shown below in Figure 3 below.

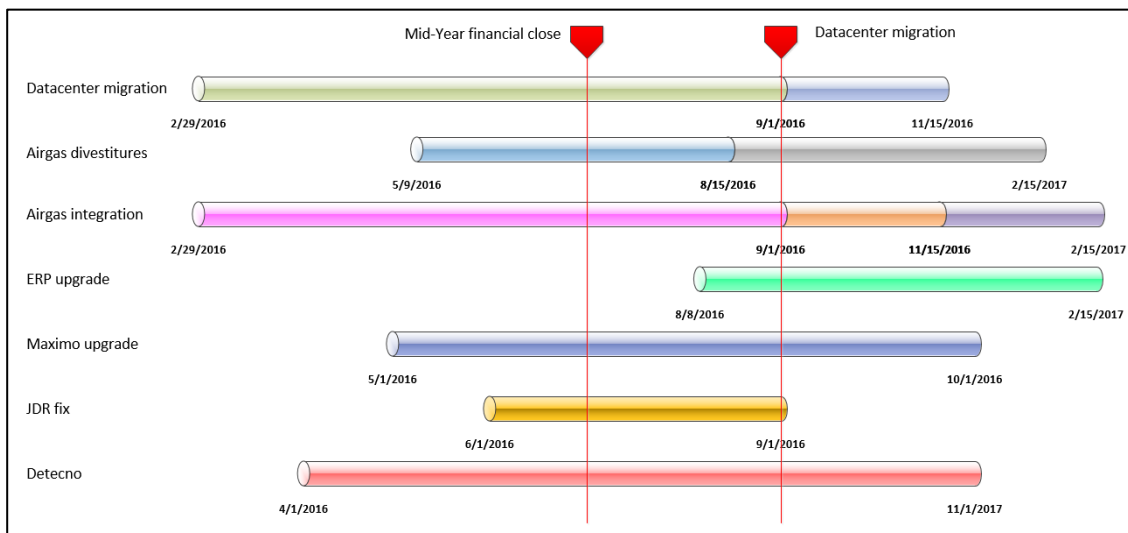


Figure 3. Largest (complexity/scope) projects for 2016

### Complexities and risks

From the above section, it is undisputable that the project landscape was complex and that the risks of undertaking the broader scope of the data centre migration were high given the short time left for plan and implement such a project.

Some other important aspects were also undefined:



Licensing required for the products in the new target data centre. This is important because how a given cost of licenses is defined is in great measure based on the actual servers being used, as well as several other aspects that are commercially defined in contracts and agreements.

Thus, it was very critical to define what those licenses costs would be in the new setting.

Potential opportunities for widespread rationalization of systems as well as decommissioning of others. In our case, a best scenario is to migrate only what will remain operational, and defining systems that were “duplicates”.

Vulnerabilities assessment and remediation. This aspect was related to a number of systems operating in foundational blocks (OS, DB, etc) that were no longer supported (or ending support soon) and the opportunity to upgrade those, which implied the need to also upgrade/update the system running on top of them, which in turn implied the requirement of testing. A migration without this consideration would also migrate the risks of vulnerabilities and would become a more pressing requirement as soon as the data centre migration was completed.

Several other technical aspects that presented the opportunity to be resolved in this migration rather than perpetuate them and postponing the resolution for another time. However, many of these aspects also created added complexities.

Given that there was no formal decision nor a contract was ready, and in reality no procurement of basic infrastructure had been initiated, it was imperative to define a direction one way or another.

For example, internal network build and external communications had not been started, and many of those require 60 or even 90 days lead time just to be installed, with additional time for testing and certification (which is required to designate a data centre to be “Production ready”).

The other projects had an already established plan, and some were already in the initial stages. Most important, the acquisition was in progress, and this process has a great level of governmental and regulatory oversight, thus much effort was provided to comply with government requirements, without having a firm date on whether the acquisition would be approved (or not).

Many if not all of the other projects could not be held or moved and it was imperative that resources to implement those became available out of the data centre migration.

It became very important at the time to define with detail an estimate of effort in hours, costs, as well as the associated risks, even before a decision is made.

### **Stance to kill the broader scope**

After several internal calls and meetings at the local level, the informal direction of the local office was to not do the data centre consolidation. That seems to be the logical and common sense position, however, as noted above, a formal analysis was needed and the chief architect was charged to do one, with the agreement that it would have to be done very soon and be as precise as possible.

It was already almost the middle of February 2016 and it was agreed to have this ready no later than February 15-16 to be presented to the global leadership for a decision by month end at latest.

The author then worked for 2 days preparing a detail analysis in support of a summary position and recommendation.

The analysis had two cases to compare and contrast:

1. Migration by Q3 2016 followed by consolidation in a non-specified time
2. Consolidation and migration done together

The analysis determined that taking the direction of the case 2 over case 1 signified about 9,000 to 10,000 additional hours or 2-3 times higher level of effort (on the basic activities, with



possibly 4-5 times once all details are accounted for, including some expected overruns), while implementing case 1 was only a marginal effort of 20-25% (with a base of 5,000-5,500 hours) over the consolidation and thus the recommendation was to work the project a “two-step” process in which the migration would be the first step and a second step later for the consolidation

Additionally, the risk in having to fit a consolidation project in a tight and non-movable deadline as oppose to a much smaller effort of migration, which still tight but relatively smaller was an important consideration.

The case for migration only would attempt to correct some of the vulnerabilities, but not the rationalization. As well, there was no need to determine the licensing required.

Finally, given personnel and other resources already in plans (which included that a consolidation would not have the provider support if the target data centre was not theirs), many of the constraints around testing and coverage for the other projects fell in place.

Now, with the analysis ready, the next and most important step was to communicate appropriately to the various stakeholders and decision makers.

In Fitzgerald 2010, we see that early communication has a very important role when there is a “sick” project, more so in the effort to hold or kill the project, rather than go with the flow until it is later ‘discover’ that failure is imminent:

But whenever projects stumble or even die, and people feel wounded, it usually has something to do with that most persistent of people problems: communication.

Michael Krigsman, CEO of Asuret Inc., an IT project management consultancy in Brookline, Mass., sketches out a typical chain of miscommunication that often plagues problem IT projects:

**Team to project manager:** "Have you seen this deadline? We couldn't finish if we worked without sleep from now until then."

**Project manager to CIO:** "The project has some, um, issues. We're, uh, going to need more time."

**CIO (wagging finger):** "Make it work."

**CIO to business side:** "I've spoken to the project manager, and the team knows they have to get it done."

"The implication is, 'If you don't make it work, we'll fire your sorry ass,' " says Krigsman. Once a top manager refuses to budge on a deadline, a series of Dilbert moments typically follow, as IT people carry on as though nothing is wrong until the project's impending failure becomes impossible to ignore.

We see a similar advice in Shacklett 2014, as number 1 recommendation

For any project, it is important to set the stage for open and cooperative communications up front — and then to practice open communications. When you see a project that is going to fail, having open communications channels is an absolute necessity.

In our case, being a global company, with a project governance in place and with a very interweaved matrix functional structure, it would require a lot of finely tuned communication to the various levels of that structure.

This is the most difficult place to be: to stand against a project that the top leadership wants but without the visibility to the lower level details of the complexities and risks associated, and which the local leadership (Americas zone) is rejecting given those much higher complexities, costs and risks.



Thus, the first step was to draft and deliver to the global leadership the analysis noted above. This was followed a couple of days with the more comprehensive detail of the analysis and requesting a conference call to discuss all the details as well as to handle any questions that might come up.

While the call was going to be among the global and top local leadership; in the meantime, separate meeting with other levels of the local leadership took place to inform and bring up to speed of the events of the project and ensure everyone was ready in case of additional information and/or analysis was required.

In parallel, call with global teams at the head office were also setup to ensure the flow of communication and to understand whether there were any other tracks of work that were interdependent to the project to be discussed, and if so, what could be potential impacts.

Ultimately, the objective was to present a stance reflecting on the rejection of the piggyback project, while providing factual solid information on the costs, risks and complexities present and to clearly communicate this in the level adequate to the specific audiences in each case.

While the brief summary of all the plans to communicate, inform, coordinate and cover any potential impacts could seem trivial, it needs to be highlighted that this required a great deal of ‘finesse’ in ensuring the right teams and leaders were brought up to the situation within the correct context and timing, not to mention that the correct context and timing is at least partially dependent upon cultural context (of the countries, cultures involved).

It is not the intention to offer pointers on cross cultural aspects of project communications, but suffice to say that being a global French company, its headquarters and global leadership is based in Paris; while the corporate office for all the Americas is based in Houston, USA; with English as the official corporate language.

## **Conclusions**

**Communication, clear, transparent and timely is the most important tool to manage a project or initiative that has risks.**

More so the higher the risks.

Whenever risks are detected in a project, it is always the best direction to alert the project sponsor as soon as the risks become apparent. Follow up to other stakeholders is the next step.

Many times, it will not be a popular move to raise your voice (and maybe the only one) in those situations; you might not have that much time to ring the bell; and waiting for things to settle might lead to miss the opportunity to contain the damage.

It is not a matter of raising issues every time or at the slightest tremor. If in doubt, the project sponsor must be your first stop.

You must be ready to escalate and go higher up the ladder and bring up your concerns.

Before starting the alarms, compile information and data which would be representative of the concerns you have, as well, you must have a good idea of the points to consider in considering the steps forward. Depending on your specific role and rank within the organization, you might not have full visibility of all aspects, but you should be ready to provide details of your data and how this leads to the risks and concerns you have voiced.

Your analysis needs to focus on quantifiable factors and center on cost, time and risk. Is best to associate risk cost and time and not just probabilities (which could be subjective).

It might be the case that you will have to defend your position, and thus, your costs, time and risks analysis will be of the utmost importance, rather than subjective positions. It is possible that you might even have to defend your position to the top levels of the organization.

It is also very important that not only you present the problems with a given course of action, but alternatives and paths to follow. We mean valid, feasible and sound alternatives, and with factual data and information to back them up.

Alternatives and paths might include compromises, be sure to clearly communicate those.



The objective of communicating and presenting the problems, facts and alternatives is to reach a win-win situation, keep in mind that most times, the situation at hand is not a zero-sum game; but ultimately, it could be and if so, you then need to be ready for it.

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## **SOCIAL ASPECTS OF THE PROJECT MANAGEMENT ON THE EXAMPLE OF IMPLEMENTING LEAN MANAGEMENT**

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### **Abstract**

Currently, many enterprises implement various undertakings in the form of projects: organizational changes, product innovations, advertising campaigns, etc. One of the organizational changes increasingly implemented in organizations of various types is the Lean Management concept. Analysis of project management results shows that about 30% of projects do not end with satisfactory results (projects are discontinued or completed). The "soft" aspects of project management are often critical to the success of projects. The paper presents the following research problem: what is important for the success of the Lean Management implementation project in terms of "soft" conditions? The aim of the paper is to present the importance of social, "soft" conditions for the effective implementation of Lean Management project and the attempt to identify the main "soft" success factors and the risks. The following research tools were used to achieve the set goals: literature studies, case studies, direct observation, interviews and questionnaire surveys. The key success factors of the analyzed project were: self-managing and committed implementation team, high competence of the team members, support of the company's top management, commitment on the client's side. In turn, the main risk factors were: lack of monitoring and control of work progress, lack of coordination of activities, lack of meetings and effective communication, lack of leadership. The presented example shows that with competent and responsible project team it is possible to complete the implementation project successfully without strong support and commitment from the project manager.

**Key words:** *Project Management, Lean Management, continuous improvement.*

**JEL code:** L20, M14, M10, O22, O30

### **Introduction**

Many companies currently implement various undertakings in the form of projects: organisational changes, product innovations, advertising campaigns, etc. One of the organisational changes that is more and more often implemented in organisations of different types is the idea of Lean Management, the goal of which is to rationalise operations by eliminating everything that does not add value to the client. Lean puts emphasis not only on tools but also on people, thanks to which the concept's goals are implemented – that is why it is so important to pay special attention to soft aspects of Lean implementation. The growing interest in Lean Management is accompanied by a growing demand for professional knowledge and skills in implementation of this management concept. Companies are often not able to independently implement such extensive organisational changes – in such a case, they seek assistance of external consultants.

Analysis of the results of project management shows that ca. 30% of projects do not end in satisfactory results (projects are discontinued or terminated). Research shows that failure of a project is rarely a result of single factor, but rather an impact of several factors (Kandefert-Winter, 2015). This is confirmed by the results of the conducted study, according to which critical factors of project success include: effective communication, support of the management, involvement of the client, proper planning and effective monitoring and control, reporting of current progress, leadership, committed and motivated team (Nasir & Sahibuddin, 2011). Projects cannot exist without people, since they not only help implement the project goals, but also create new knowledge and experience – thus "soft" aspects of project management often become the critical factors.





The paper presents the following research problem: what is essential for the success of the project of implementation of Lean Management with regard to "soft" determinants?

The purpose of the paper is to present the importance of "soft", social determinants of successful implementation of the project of implementing Lean Management, as well as to attempt to identify the main "soft" factors of success and risk of implementation of such a project with the participation of a consulting company. To achieve the set objectives, the following research tools were used: literature studies, case study, direct observation, interviews, and surveys.

### **Social and organisational determinants of Project Management**

The increase in the importance of projects in management is accompanied by a growing demand for professional project knowledge. The uniqueness and complexity of projects, specific dates of their implementation, defined quality requirements for the project results make it necessary to ensure efficient project management. Project management is a field of management dealing with the application of available knowledge, skills, methods and tools to achieve the assumed objectives of the project, i.e. the intended result of a specific quality, in the given time and for the agreed costs. Project management consists of five groups of processes: initiating, planning, executive, monitoring and control, as well as final (Trocki, 2014). The basic division covers three problematic areas, forming the so-called triad of project management: functional, organisational and personal problems of project management (Krüger, 1993). The dominant group of risk factors in projects consists in management factors. They are most often related to the project manager. Their creation also involves lack of proper organisational procedures, inefficiency of control mechanisms, inability to introduce organisational changes, communication difficulties (Skalik, 2009). Reasons for failures less frequently concern microeconomic or technical and organisational criteria; they are more often related to organisational culture and the sphere of interpersonal contacts (including lack of feedback) (Schröder & Diekow, 2009). Below will be discussed selected socio-organisational determinants of project management related to project teams, project manager, team motivation, and communication.

#### **Project teams**

It is assumed that implementation of projects usually requires application of a special form of cooperation, referred to as task teams. They are established to perform a specific individual task and are dissolved after its performance. The basis for becoming a member of the task team are specialist knowledge and skills. Task teams usually include representatives (or main decision-makers) of particular departments and all experts needed to perform a given task (Trocki, et al., 2003). The efficiency of functioning of project teams depends on how well particular people comprising these teams fit together. Certain general requirements concerning project team members may be indicated. According to R. Kelling (2000, pp. 108-109), these are:

- subordination to the project manager,
- substantive self-reliance and ability to work in a team,
- alignment, empathy and mutual respect.

J. R. Meredith and S. J. Mantel (2000, pp. 97-98) presented a slightly different classification of the desired skills of project team members:

- political correctness, namely the awareness of principles of functioning of the whole organisation,
- focus on solving problems (work in interdisciplinary teams),
- focus on results,
- high self-esteem.



Project implementation requires teamwork – cooperation of people with different skills. A newly appointed project team does not reach full effectiveness in operation straightaway but goes through several phases referred to as the life cycle of the team. These are: forming the team, fighting for a position on the team, stabilising teamwork, effective work (operation) and parting (thanking for cooperation and keeping contacts to co-workers) (Walczak, 2014, p. 53). P. Lencioni (2005, pp. 2009-2010) indicates five reasons for failures of group actions: lack of mutual trust, fear of constructive criticism, lack of commitment, avoidance of responsibilities, and lack of attention paid to the results. The success of the project team is also influenced by its composition (heterogeneous groups in projects enable optimal connection and use of knowledge, experience, personalities) and efficient communication.

### **Skills and tasks of the project manager**

Literature has high expectations towards the project manager, since he largely determines the project's success. Currently, great emphasis is put on searching for a manager - leader. The project manager is expected to have the following features and skills:

- authority among project team members,
- technical (specialist) and administrative (as an effective manager) credibility,
- ability to implement management style both focused on tasks and on people,
- ability to identify problematic situations and having political intuition,
- ability to notice conflict situations in the team,
- independent thinking,
- diplomatic abilities and ability to defend own views,
- energy and consistency in action,
- respect for a different point of view of project team members,
- lack of strict control (giving autonomy)
- ability to create the atmosphere of cooperation and free information flow,
- ability to defend the project team interests and deal with various pressures,
- resistance to stress,
- responsibility and commitment (Keeling, 2000, p. 7; Meredith & Mantel, 2000, p. 107; Newton, 2015, p. 92).

The literature emphasizes the need for standardization and even certification of the skills and profession of the project manager (Ilmete, et al., 2011; Pulmanis & Bruna, 2011). Project management style should follow democratic (integrating) style. The intensity of features of this style – focus on people and the task – may be different depending on the specific nature of the project and the institutional form of its execution. Requirements with regard to management style vary in various phases of project implementation. The initial phases of defining and planning of project execution are dominated by focus on people, while further design phases – execution and completion of the project – the focus is on the tasks (Trocki, et al., 2003, p. 115).

Numerous expectations are also formulated towards the project manager. The project manager should:

- assign tasks to individual project team members,
- motivate the team and be familiar with the progress of team members in relation to the plan,
- communicate with the project team: explain and continuously update the information regarding the plan and the scope of the project, along with the progress of the project over time; listen to the team, since it is the source of the most important information, good ideas and suggestions,
- understand the appearing problems and types of risk and counteract them,
- understand the dynamics of the team and its members to plan and implement necessary interventions with regard to management (Newton, 2015, p. 34).



The task of the project manager is to lead his/her team to the stage of effective work, where the project goals will be achieved. The manager should thus, together with the client, expressly specify the project goals (they should be measurable) and determine the ways in which they should be achieved.

### **Motivating the project team**

The project team expects the manager not only to help determine the task sequence or to solve of any emerging problems on a current basis, but also to cheer it on to achieve possibly the best results. A very important issue in project management is thus motivating project team members and ensuring good climate of work. What induces people to work in project teams? We can indicate the following motives, beyond financial motivation: prestige, friendliness, status, unusual task, opportunity to show initiative and independence. The motivating instrument may also be the possibility to learn something new and develop personally during the course of the project being implemented. In particular, the project manager should focus his/her attention on creating challenges, expressing acknowledgement and designing work. He/she should follow the following guidelines with regard to effective motivation: should be motivated and lead by example, should trust employees and give them autonomy, should quickly respond to newly-appeared conflicts (Trocki, et al., 2003, p. 122).

Motivating people in the course of the project implementation has a slightly different special character than in the case of continuous work; it consists rather in transferring enthusiasm to the employees and maintaining their involvement in the tasks performed (Phillips, 2004, p. 340). Even though, at the beginning, the project team usually is highly committed to the project implementation, this commitment decreases later on and needs to be sustained. The most common reasons for the lack of employee motivation in project teams are the following phenomena:

- criticism to which the employee cannot respond,
- indecisive management, uncertainty in execution and presentation of the project objectives
- excessively long meetings that do not end in specific results,
- looking for culprits instead of solving problems,
- excessive democratisation or excessive formalities,
- showing mistrust towards the employees, rigid, non-flexible course of the project – no possibility to implement new ideas and introduce changes,
- atmosphere of competition between employees,
- excessively high expectations
- lack of *feedback* about the employee's work (Trocki, et al., 2003, p. 123).

### **Communication in the project team**

For the success of the project, the skills of project managers within the scope of effective communication are very important. This is confirmed by results of the study of Arras People, conducted among 1000 specialists in project management, according to which these skills are at the second place, whereas technical skills were ranked only on the 7th place. Research on factors of failures in projects show that lack of effective communication at any stage of the project life cycle may result in problems in the project and failure of the project (Kandefert-Winter, 2015, pp. 163-164). Also, the most common accusations that employees have towards project managers involve communication problems: unclear formulation of expectations, not very clear instructions and lack of constructive feedback (Frame, 2001, p. 95). Research also shows that professional communication is a significant success factor in the project (it was included in 20 out of 43 studies) (Nasir & Sahibuddin, 2011, pp. 2174-2186). The study The silence fails indicates that effective communication during the project implementation



minimises problematic areas, significantly raises effectiveness and efficiency of the implemented projects and improves their results (Kandefert-Winter, 2015, p. 168).

Thus, professional communication should apply to the whole period of project management – starting from the initiation through the phase of planning, implementation and monitoring to completion of the project. Communication is one of the vital aspects of the activity of a project manager. Photographs of the project manager's work day indicate that he/she devotes approximately 80% of time to communication during implementation of the project. Some sources state that project managers devote even approximately 90% of time to communication (Kandefert-Winter, 2015, p. 163; Phillips, 2004). Communication in the context of a project is seen not only as interpersonal communication but also as communication management in the project. Implementation of communication management involves continuous adjustment of communication management processes to the needs of the project team and the client's needs (thus it is important to learn the expectations, preferences concerning the means of communication, frequency or format) This requires continuous interaction with the project team and the client, as well as two-way communication.

Communication with the project team should consist in regular meetings organised systematically in order to assess the progress of works, discuss problems, types of risk and changes, as well as agree on what the team will focus on throughout the next period. At the meetings, employees should be able to present their ideas and submit applications regarding changes. It is worth encouraging project team members to present their reflections and critical comments. The meeting is also an opportunity to express gratitude towards co-workers for their work. The main goal of meetings is, of course, to transfer information, but they can be also used to increase integration of the team, which usually significantly reduces communication barriers (Frame, 2001, p. 95; Newton, 2015, p. 49; Walczak, 2014, p. 261). Meetings may also be informal to overcome the internal barriers in communication in the team and help solve any emerging problems (Trocki, et al., 2003, p. 124). A particularly important event is the kick-off meeting, where the whole team starts the project implementation. During the first meeting, the project manager presents his/her management style and goals of the project, its scope, scope of works, procedures, methods. The meeting is also intended to familiarise project team members with each other. The most important thing is to define the principles of joint work. It is necessary to indicate the most important milestones of the project. It is desirable for the management's representative of the organisation for which the project is being implemented to participate in order to emphasise the importance of the project (Frame, 2001, p. 95; Trocki, et al., 2003, p. 124).

### **Consulting projects as the basis for business operations of consulting companies**

Consulting projects have the standard characteristics of a project: uniqueness, time frames, defined goal, dedicated resources. The purpose of each consulting project is to deliver value for the customer, which the customer would not be able to achieve with his/her own resources (knowledge, experience, time, etc.). For consulting projects, it is also typical that they require involvement of the client, who is more familiar with the special character of the company, the existing problems and has access to its resources (people, infrastructure, etc.). The project team thus consists of representatives of at least two organisations: the consulting company and the client. Another feature of consulting projects is the difficulty in evaluating the results of works, in particular by people outside the project. While it is relatively easier to evaluate the quality of documentation (project deliverables - expert's reports, reports), evaluation of results in the form of the desired improvements or the implemented organisational changes is not easy, and often even impossible right after completion of the project (Wickham, 2004, pp. 4-8).

Several typical phases can be distinguished in the consulting project's life cycle. The acquisition (sales) phase of the project involves the client's inquiry and development of an offer by the consulting company. If the offer is accepted by the client, it is followed by price



negotiations and, as a result, signing of a project agreement which starts the project implementation phase. The project implementation stage is, to a large extent, determined by conditions contained in the agreement: scope of the project, objectives, project deliverables, schedule of works, schedule of payments. In the project implementation phase, the client's requirements may change and usually are changed. The process of continuous change management in the project is the responsibility of the project manager and should be moderated by him/her throughout the project duration. In the implementation phase, the quality of cooperation with the project team on the part of the client is very important, as well as access to information and knowledge in the client's organisation, which enables good analysis and assessment of the situation, and strengthens the adequacy of proposed solutions. The project implementation phase ends in transfer of products of the project works and acquisition of acceptance certificates of the works deliverables by the client. This is connected with the payment of receivables by the client for the whole project or its stage if it is carried out in tranches. The last stage is the completion of the project. For the client, this stage involves acceptance of deliverables and payment of receivables. For the consulting company, closing of the project also involves the phase of archiving and collecting design documentation in knowledge bases and drawing conclusions from the project (lessons learnt workshop) (Sońta – Drączkowska, 2015, p. 131)

### **Lean Management – the essence and conditions of implementation**

One of the organisational changes implemented in a company in the form of projects is Lean Management. The essence of the concept of Lean Management is reduction of any waste (Jap. *Muda*) in order to optimise company operations and, as a consequence, raise its effectiveness. The goals of LM are achieved through implementation of five principles: identification of value for the client, identification of the value stream, shaping of continuous flow, pulling of value from the next upstream activity, and continuous improvement. Lean Management refers to the Japanese philosophy of *kaizen*, which comes down to continuous improvement of all business areas of the company and pays great attention to activities in the scope of problem solving. All members of the organisation, regardless of their position therein, should be involved in improvement actions. High requirements are posed towards the chief management of the company, which should express its support for and involvement in implementation of Lean Management.

The success of implementation of LM is influenced by many factors, but particularly emphasised (as proven by studies conducted in this respect) is the importance of the so-called "soft" factors, which can give a guarantee of success in proper conditions, and if neglected - can largely limit the implementation of LM. The main factors of such nature include: attitudes and competences of employees, involvement of the management, organisational culture, management style, systematic communication with employees (Čiarnienė & Vienažindienė, 2015; Emiliani, 1998; Holtskog, et al., 2016; Taleghani, 2010; Trenkner, 2017; Walentynowicz, 2013; Ortiz, 2008; Quirin, 2015; Miller, et al., 2014).

A very difficult and, at the same time, one of the most significant conditions for the implementation of LM is creation of a cultural climate favouring continuous search for and solving of problems in the organisation, as well as improvement in all aspects of its operation. Lean requires changes in attitudes and behaviours of employees, continuous dialogue between managers and the crew, and focus on continuous improvement. The main determinants of Lean culture include: cooperation, involvement, identification of problems, reporting of improvements, small power distance, the right to make mistakes, sharing of benefits, etc.

Literature very strongly emphasises the important role of various levels of management in the implementation of the concept of LM and the need for personal involvement of the top management in activities in the scope of Lean (Liker & Convis, 2012; Stoller, 2015; Trenkner,



2016). The top management usually remains responsible for making a decision on introducing the concept of LM and presenting the vision of changes to the employees. It is impossible to overestimate the subsequent active and constant (consequent) inclusion of the management in the implementation works, delivery of necessary resources and shaping of the Lean culture. Using *gemba walking* and *shop floor management*, managers can express their support for actions related to Lean and communicate the importance of actions in this field. It is also significant for the managers to be fully familiar with what is happening at work stations and have an insight in problems that appear there.

The implementation of Lean often comes down primarily to the implementation of the basic Lean tools, i.e.: 5S, VSM, TPM, standard work, visualisation, SMED, Poka Yoke, etc. - usually in the event when the company wants only to achieve short-term results. However, it is often forgotten that implementation of tools is not enough. They are used by people, and those people determine whether and how the tools will be used by them. Thus, it is important to create Lean culture fostering the use of the principles and tools of Lean Management.

The effective implementation of Lean Management involves undertaking a number of actions. J.P. Womack and D.T. Jones (2012) suggested the following methodology of implementation of Lean Management:

- Phase 1 (initial phase) – finding a person with proper qualifications and skills to undertake activities within transformation of the company. It may be a person (team) belonging to the group of the company's employees or a person (people) from the outside, e.g. external consultants. Then, initial trainings for employees should be conducted, as well as pilot implementation of Lean in the selected process (or processes). At this stage, emphasises is put on the important role of the managerial staff with regard to supporting employees of departments being reorganised.
- Phase 2 (creation of slim organisation throughout the entire production system) – dissemination of the concept after completion of the pilot actions: reorganisation of all processes that require improvement, creation of the LM department, inspiring employees with the need for continuous improvement. The process of transformation of the organisation towards Lean involves the use of such tools as: VSM, 5S, TPM, SMED, just in time, etc. as well as creation of Lean culture fostering involvement of employees. A very important role in this regard is played by the management staff of various levels.
- Phase 3 (development of the concept) – creation of transparent communication (e.g. visual communication), conduct of specialist trainings within Lean, creation of favourable infrastructure.
- Phase 4 (final) – preparation of a consistent, global LM strategy, which can be transferred to other company branches, greater appreciation for bottom-up initiatives. The transformation ends with the appearance of Lean culture and inclusion of all employees in continuous improvement. Lean culture has a very strong impact on effective implementation of this concept. Authors state that creation of such a culture needs approximately 5 years.

Implementation of Lean Management in the company is a large project, which should be properly managed, and with regard to which the company should be aware of the presence of critical points in such a project. Questionnaire-aided interviews with 17 professionals (eight corporate managers and nine experts with PhDs in this area) show that the most critical processes in the implementation of lean projects involve procurement, stakeholders, communication, human resources, and risk management (Anhalon & Sano, 2016). This survey, based on PMI methodology, proved great importance of "soft" aspects of project management, indicating areas related to project stakeholders and communication as critical for its success.

### **Social aspects of the implementation of the Lean project – case study**

The examined medium-sized production company represents the textile industry. In response to the increasing market needs (growth in the number of orders), the need for



optimisation of activities appeared in the company; it started to search for opportunities to increase production capacities hidden in the reserves. In 2016, the company's management board made the decision to implement Lean Management in the company. Due to the lack of knowledge and experience with regard to implementation of LM, it sought assistance of a consulting company, which conducted the initial audit. As a result of the external audit, various dysfunctions were observed, i.e.: over-stocks, stoppages, lack of synchronisation of activities, lack of effective communication, lack of space, unnecessary transportation. The implementation works were divided into stages. The first stage - preparatory actions, related to "unfreezing" the organisation, consisted in preparation and conduct of basic in Lean Management trainings (principles and philosophy of LM, 5S, system of employee suggestions, optimisation of stock management, communication) at the end of 2016. The trainings covered approximately 50 people – managers of the middle and the lowest level and specialists. Preparatory actions also involved convincing the trained group to use the new management concepts, as well as to propagate it throughout the organisation. On the whole, the new method of managing the company was met with the approval of employees, since they were aware that changes in their company are unavoidable. However, it did not mean that no concerns and doubts appeared related to the course and consequences of Lean implementation.

During preparatory trainings, the author conducted a survey study. The purpose of the study was to diagnose and assess the attitude of employees to the work performed by them, manifested in the employees noticing the need for changes, problems appearing in the department they work in and on the occupied job position, the ability to identify reasons for problems and find solutions to problems. The point was to examine the natural tendency of employees to identify and solve problems. The anonymous questionnaire, conducted in September 2016, covered 42 project managers of the lowest level (linear) who are supposed to be leaders of the changes being introduced. By the time of the study, they had not participated in any trainings in Lean Management. The results of the conducted surveys showed that in the company has a climate stimulating social for implementation Lean Management. The company has employees with positive attitude towards the work performed, who are aware of the need to introduce changes in their company, notice problems appearing in the organisation (although more people locate them in the department than on the occupied position), are able to name them, attempt to specify causes of problems, and report ideas for their solutions. The vast majority of the surveyed notice the need for improving their work and are able to specify the benefits of such actions. The study also revealed the awareness of the need for cooperation between departments and synchronisation of their activities.

The implementation phase commenced in the middle of 2017. At that time, an agreement was signed, specifying the main assumptions of implementation of the Lean Management implementation project in the examined company. The following objectives of the project were specified: preparation of VSM (the existing and target condition) for two selected, technologically diverse production processes, preparation and implementation of the employee suggestions system, and implementation of 5S. A project team was appointed, which included six consultants responsible for particular sub-projects. On the part of the company, the implementation team included a dozen or so employees (representing different company departments): project managers of the middle and the lowest level and specialists in the field of HR, OHS, maintenance, technologists, constructors, etc. The implementation team members (on the part of the company) were intended to support the implementation of Lean in their areas. The owner of the consulting company was appointed project manager. The completion date of the project was fixed as the end of November 2017. The kick-off meeting was organised, during which the project manager presented the project objectives, its scope and methods of work. The meeting also served to introduce the project team members to each other.

Then, the first works related to the project execution begun - diagnosis of the work execution at particular job positions and the course of production (VSM) Problems also began



to be discovered, constituting a consequence of the previous organisational culture, i.e. e.g. lack of support for bottom-up initiatives of employees with regard to improvements at job positions. The previous attempts at improving production and work undertaken by employees were not met with positive reception of the management, and thus employees had a very sceptical attitude towards this type of solutions and did not believe in their effectiveness. Implementation of the LM concept without a favourable organisational culture is doomed to failure from the start. The consultants were aware of this, and thus, when diagnosing the course of processes (preparation of VSM), they undertook the first actions associated with changing the organisational culture. These actions were not included in the agreement, which focused mostly on the tool side of Lean. Long conversations with multiple employees, persuading them to try the new values and standards on which Lean is based, and thereby to adopt the new attitudes already resulted in the first changes in the organisational culture, and employees began to undertake the first initiatives in the spirit of Lean. However, it was important to create the foundation in the form of values and standards binding in the company and for them to be recognised by the top management as valid. During negotiations with the top managers, the consultants were trying to convince the management that it needs to officially recognise and promote the new values and standards related to Lean, i.e.: cooperation and teamwork, multidirectional communication, reporting and solving problems, reporting improvements, continuous improvement.

A great problem and limitation during the implementation of Lean was the communication system, very poorly developed in the company. Only convincing to organise meetings and assist in their conduct facilitated communication in the company. Effective communication was also supported by the introduction of visual management. At that time, a Lean Coordinator was appointed. He was one of the company employees - a person cooperating with various company departments, well-known and well-liked, which significantly facilitated and improved communication in the company and with consultants.

The consultants - specialists in the fields of Lean and enthusiasts of this management concept - assigned to particular sub-projects performed their tasks according to the adopted guidelines. Their involvement in the project was high, since they saw the great willingness to cooperate of the company employees and treated the project as a new, important professional experience. Employees placed great trust in the consultants: expressed their problems, presented their concerns, shared their experience, suggested new solutions. This gave the consultants a great motivation to work. Particular sub-projects progressed, however, as time went on, problems started to appear, arising from the weakness of project management: lack of coordination of activities, lack of control of work progress (usually, the consultants reported the conducted activities to the project manager themselves), lack of information on advancement of particular sub-projects, problems with synchronisation of particular activities, lack of feedback from the manager about pursuance of the project objectives (e.g. praises, words of gratitude). The trouble with communication concerned not only the consultants, but also contacts with the client. The consultants responsible for particular sub-projects met with company employees during their visits, however, communication in periods between their visits was poorly organised - it was limited mainly to selective messages from the project manager. There were also no regular meetings of consultants with the project manager, who was also implementing other projects at that time. The consultants were relying mostly on themselves - and although it was not a problem at the beginning of the project implementation, along with progress of the works, they more and more often expressed the need for coordination of activities and communication possibilities under regular meetings. Finally, no formal meeting of the implementation team within the project manager was held in the course of the project implementation. In such a situation, spontaneous (informal) communication started to be used. At the end of the project implementation, the consultants decided, bearing in mind the concern for the quality and timeliness of the project, to organise an informal meeting themselves and discuss their problems and doubts during that meeting. The meeting allowed for solving





problems, clarifying various issues, and enabled coordination of further actions - and so, the project team evolved towards a self-managing team.

Simultaneously with the lack of communication and coordination, the consultants had to handle many "soft" issues related to the implementation of Lean in the company. Apart from the aforementioned need to introduce changes in the organisational culture of the company, it was a great challenge to introduce changes in attitudes of the top management staff. According to the Lean philosophy, the top management should express its personal commitment and support for the changes being introduced. The consultants began to convince managers to use *gemba walking* and *shop floor management*. These actions were not included in the agreement, but the consultants decided that without them the introduced tools (5S, employee suggestions system, new organisation of production and work posts) and solutions will not be permanent. Therefore, it was important to convince and teach managers to inspect work posts and communicate with operational employees. Initially, the top management mainly focused on fast, immediate "hard" effects - reduction of costs, increase in efficiency, etc. The consultants explained to the chief management numerous times that the effects of changes being implemented will not appear immediately - they require time, and the effectiveness of the implemented tools depends largely on the people: their attitudes, behaviour, conditions they work in, and favourable work climate. In the described case, this change in attitudes of the employees was already visible, which gave good prospects for the future.

The project was completed on time. The report presented: maps of the present condition of selected processes, conducted actions with regard to the implementation of 5S, the employee suggestions system, proposed changes in the course of production and the organisation of work posts, results obtained after the project implementation (measurable and non-measurable), results planned to be achieved in the long run, barriers disclosed in the process of designing and implementing changes, guidelines for recording the results of the project, as well as indicated conditions for increase in efficiency. The client accepted the report, expressed satisfaction with the course of the implementation activities and thanked for the results that were already noticeable; a hand-over report was signed. Subsequent actions were planned, associated with cooperation with the consulting company – audits of the introduced solutions and subsequent trainings constituting a preparation to the execution of subsequent stages of Lean implementation. Under closing of this part of the project, no meeting of consultants summarising the project was held (lessons learnt workshop) to draw conclusions from the project.

## **Conclusions**

The success of a consulting project should be considered two from points of view: the client and the consulting company. For the client, a successful project allows him/her to achieve the objectives defined in the agreement. On the other hand, for the consulting company, a successful project is characterised by: observance of the time limits, high quality of the provided service, which affects the client's satisfaction and, as a consequence, the desire to continue cooperation with the consulting team and good references for the consulting company. Taking into consideration all the aforementioned criteria, it can be stated that the project ended in a success for both the client and the consulting company. The report containing new solutions and recommendations was submitted on time, the first results of activities appeared: functional suggestions system, new organisation of the workplace (application of 5S), new lay-out of the production process, changes in the organisational culture, increase of LM principles awareness within the management staff and the employees, growth in the employee commitment. The client signed a hand-over report and expressed satisfaction with the implementation and results of the project.



The key success factors of the analysed project were: self-managing and committed implementation team, large competences of the implementation team members, support of the top management, involvement of the client – company employees. On the other hand, the main risk factors were as follows: lack of monitoring and control of the progress of works, lack of coordination of activities, lack of meetings and effective communication, lack of leadership. The presented example shows that it is possible to complete an implementation project successfully without strong support and commitment of the project manager – in spite of the literature emphasising the importance of the manager's numerous professional skills and tasks. As proven by the example, in the case of a project team characterised by a high level of competences, responsibility, self-reliance, teamwork, attention to the results, and great commitment, the team becomes the key success factor of the project. In this case, the self-managing team became the project manager for themselves because "we are all project managers now" (Pulmanis, 2014). However, a great risk within this solution was that members of the project team had to perform additional actions that usually rest with the professional project manager and devoted additional time to those actions (sometimes at the expense of performance of their own tasks). These activities included: independent control of the progress of works, mutual motivation, agreeing on activities, dealing with doubts, reporting of solutions to any emerging problems, as well as - which is very important during implementation of the concept of Lean Management - constant contact with the client (supporting, explaining, persuading, clearing doubts). The project of implementation of Lean Management, apart from the tool-related side, should also include "soft" conditions for implementation of this organisational change, i.e.: creation of Lean culture, without which the pursuit of objectives and principles of this concept is impossible. This requires additional work and, as a consequence, additional time and commitment of the consultants. Such actions should also be included in the agreement - in this case, these actions were omitted at the stage of the project planning.

The key success factor on the part of the client was, undoubtedly, the client's large involvement in the execution of implementation work and great willingness to cooperate. Both the employees comprising the project team, as well as other employees of the company and the management staff actively participated in implementation activities. Greater effort was required to convince the management to adopt the Lean attitudes: give evidence of supporting the concept being implemented, convince to use *gemba walking* and *shop floor management*. It was a difficult project, due to the large scale of changes (apart from introduction of basic tools - also a cultural change) and the high, difficult to predict dynamics of changes (it was necessary to respond on the current basis to newly-appeared problems, which to a large extent resulted from the changing attitudes and behaviours of people). Thanks to great care for the people and tasks, the project ended in a success. The examined company is on the right path to further transformations in the spirit of Lean.

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## METHODOLOGICAL ANALYSIS OF THE PROJECT RISK MANAGEMENT CONCEPT ‘RISK’

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### Abstract

The aim of the current research series is to examine the concept “risk”. Methodological analysis of project risk definitions and concepts are used to answer the question how to define the “risk” concept, and what the definition types and definition structure are.

The study is the final study from a series of research on project risk management ontological, epistemological and methodological analysis. The research series aims to improve project risk management. In the previous studies, the author analysed the concepts that define the content of the “risk” concept.

Ontological analysis of the “risk” definitions and concepts are used to answer the question what the risk in project management is and establish the decisive concepts that determine the ‘risk’ concept and assess the concepts used in the definitions and their use in the sources in accordance with the categories of quality, quantity, relation, action, time and place.

Epistemological analysis of the concepts in the concept “risk” definition was used to answer the question what the risk in project management means. In epistemological analysis the author analysed the concept “event” that defines the content of the concept “risk”.

In all studies with a few exceptions the author used publicly accessible sources from the Internet as well as qualitative research methods and free of charge software.

Results from the series of research on ontological, epistemological and methodological analysis in project risk management can facilitate the quality of project risk management, and especially, the development of the project risk register.

**Key words:** *project, risk, concept, methodology, methodological analysis, project risk register.*

**JEL code:** M00, M10, M190

### Introduction

Effective project risk management includes risk identification, risk analysis and risk management. In projects one of project documents is the risk register. The risk register includes the identified risks, results of the risk analysis, risk management implementation activities and report of implementation. A qualitative risk register is not possible without a complete risk identification and analysis. To identify something, it is necessary to know what is identified. It is easier to identify and analyse risks if we know what a risk is. The proof of understanding lies in the quality of definitions. It is therefore important to analyse the definitions of ‘risk’, the type and structure of the definitions in order to use the results of the study for the risk register.

### Methodology of Research

The current study like two previous ones - the epistemological and ontological analysis studies, is based on the use of qualitative research methods. Considering the restrictions of the article volume, 20 sources were selected out of 64 with glossary. 64 sources represent a selection of sources for a bigger study. A generator of random numbers was used for the selection of the sources ([www.random.org](http://www.random.org)). During the research, two of the sources were excluded because they were not suitable for the study. 17 sources were of Adobe Acrobat .pdf format and one of Microsoft Word .doc. All sources were publicly available online in September 2017.

The term ‘methodology’ has different definitions. The term ‘methodology’ is defined in the English Oxford Living Dictionaries ([en.oxforddictionaries.com](http://en.oxforddictionaries.com)) as “A system of methods used in a particular area of study or activity”, in the Cambridge Dictionary ([dictionary.cambridge.org](http://dictionary.cambridge.org)): “a system of ways of doing, teaching, or studying something”, in



the Macmillan Dictionaries ([www.macmillandictionary.com](http://www.macmillandictionary.com)): “the methods and principles used for doing a particular kind of work, especially scientific or academic research”, in the Merriam-Webster dictionary ([www.merriam-webster.com](http://www.merriam-webster.com)): “a body of methods, rules, and postulates employed by a discipline” or “a particular procedure or set of procedures” or “the analysis of the principles or procedures of inquiry in a particular field”, and in the Collins dictionary ([www.collinsdictionary.com](http://www.collinsdictionary.com)): “A methodology is a system of methods and principles for doing something, for example for teaching or for carrying out research” with differences between British English “the system of methods and principles used in a particular discipline” and American English “the science of method, or orderly arrangement; specif., the branch of logic concerned with the application of the principles of reasoning to scientific and philosophical inquiry”.

In the current study, like in the two previous studies, the author used the Find and Advanced search function of programme Adobe Acrobat Reader DC 2017 Release, as well as the Concordance, Clusters/N-Grams, Collocates and Word List functions of AntConc 3.4.4w (Windows) and Search functions of Microsoft Word. Applications Adobe Acrobat Reader and AntConc are available online free of charge. To use the AntConc application for analysing the definitions of the ‘risk’ concept, each definition was saved in a separate text file thus together creating 18 text files. 17 sources were first of all analysed in their original format of Adobe Acrobat Reader DC and 1 source in its original format of Microsoft Word. Secondly, to use the AntConc application for the analysis of the concepts used in the definitions of ‘risk’, 17 files were transformed into text files with the help of functions Save as Other of Adobe Acrobat Reader DC by choosing Text and 1 file was transformed into a text file with the help of function Save as Other of Microsoft Word.

### Findings/Results

All sources are a special section containing definitions of notions. The source volume is different, the shortest is 11 pages (Source No.10), the longest 440 (Source No.7). AntConc was used to estimate the defined notions against original words. The largest number is in Source No.7. Only 4 sources (Source No. 3, 13, 16 and 17) have more than 5% used words definitions of the used terms. The study did not evaluate the distribution of notions, however the sources with the largest number of original words (Source No. 3, 6 and 7) defined notions (nouns, adjectives, adverbs and verbs) are approximately 25% among the first 50 most used terms. Table 1 summarizes information about the sources.

Table 1

**Information about the sources**

Source no.	Source name	Information about source
1.	EAN.UCC Project Management Framework Handbook	Source size (pages; original words): 73; 1670 Glossary name: Glossary of Terms Defined notions and rate against original words: 39; 2.3% Specific attributes: not (the descriptions of the next sources are only indicated if there are specific attributes)
2.	IT Project Management Third Edition Instructor’s Edition	Source size (pages; original words): 369; calculation not possible Glossary name: Glossary Defined notions and rate against original words: 262; calculation not possible Specific attributes: defined purpose of the glossary
3.	The African Development Bank Guidelines for Financial Management and Financial	Source size (pages; original words): 293; 4656 Glossary name: Glossary Defined notions and rate against original words: 385;



	Analysis of Projects	8.3% Specific attributes: Glossary references
4.	Development Cooperation Manual	Source size (pages; original words): 178; 4020 Glossary name: Glossary Defined notions and rate against original words: 108; 2.7% Specific attributes: manual text includes footnotes with definitions
5.	ITTO Manual for project formulation	Source size (pages; original words): 92; 2797 Glossary name: Glossary Defined notions and rate against original words: 69; 2.5%
6.	NPR 7120.5, NASA Space Flight Program and Project Management Handbook	Source size (pages; original words): 150; 4706 Glossary name: Glossary Defined notions and prate against original words: 107; 2.3%
7.	IOM Project Handbook	Source size (pages; original words): 440; 6020 Glossary name: Glossary Defined notions and rate against original words: 59; 1% Specific attributes: comment “Unless otherwise noted the terms and definitions contained in this Glossary were developed specifically for the IOM Project Handbook. For more migration-related definitions refer to the IOM Glossary on Migration (2nd Edition)” (International Organization for Migration, 2011)
8.	Investment Lifecycle Guidelines Supplementary Guidance	Source size (pages; original words): 38; 1935 Glossary name: Glossary Defined notions and rate against original words: 80; 4.1%
9.	Project Risk Management Guideline	Source size (pages; original words): 40; 1728 Glossary name: Definitions Defined notions and rate against original words: 47; 2.7% Specific attributes: all definitions, with except for 9 definitions, are references to other glossaries, including a reference ISO Guide 73:2009 for notion ‘risk’
10.	Risk Management @ Monash	Source size (pages; original words): 11; 509 Glossary name: Glossary Defined notions and rate against original words: 8; 1.6%
11.	Project Management @ Monash	Source size (pages; original words): 22; 1290 Glossary name: Glossary Defined notions and rate against original words: 30; 2.3%
12.	Aid Delivery Methods Volume I Project Cycle Management Guidelines	Source size (pages; original words): 158; 3765 Glossary name: Glossary of key terms Defined notions and rate against original words: 98; 2.6% Specific attributes: the term hierarchy, one definition includes another definition
13.	Pima County Project Management Manual and Exit Gate Process	Source size (pages; original words): 149; 2424 Glossary name: Project Management Term Definitions Defined notions and rate against original words: 165; 6.8% Specific attributes: goal of defining notions is “The purpose is to add consistency to the terms we use in order to limit any confusion that may occur” (The Seal of Pima County, 2009)
14.	Project Risk Management Handbook Threats and Opportunities	Source size (pages; original words): 65; 1570 Glossary name: Glossary Defined notions and rate against original words: 25; 1.6%
15.	Risk Management Guide For DOD Acquisition	Source size (pages; original words): 39; 1709 Glossary name: Definitions



16.	State of Michigan Project Management Methodology Desk Reference	Defined notions and rate against original words: 11; 0.6% Source size (pages; original words): 101; 2413 Glossary name: Key Terms and Acronyms Defined notions and rate against original words: 240; 9.9% Specific attributes: Anotation “While many of these terms are not mentioned within the body of this guide, they are nonetheless important to understanding Project Management” (...)
17.	Risk Assessment and Management Process (RAMP)	Source size (pages; original words): 48; 1860 Glossary name: Glossary of Terms Defined notions and rate against original words: 133; 7.1% Specific attributes: Sources list for glossary of terms
18.	Project Management Framework	Source size (pages; original words): 136; 2221 Glossary name: Glossary Defined notions and rate against original words: 33; 1.5%

*Source: The author’s valuation*

Project management is not a scientific discipline with generally recognised concepts. Consequently, it is important to define the terms used. The number of the defined terms against original words varies from 0.6% (Source No.15) to 9.9% (Source No.16). The number of definitions does not depend on the page numbers and original words of the sources. Source No.7 has the largest number of pages and the third smallest number of definitions, the sources with less than 3% less of the notions defined, page numbers vary from 11 to 440 pages and the number of original words varies from 509 to 6020 words.

Only Source No.13 has the objective of defining. Source No.16 has an emphasis on the purpose of defining. In the sources, the notion ‘term’ is used in several meanings, as ‘concept’, ‘deadline’ and ‘condition’. However, the results of the study are not sufficient to conclude that the concept ‘term’ uses in the text of sources define or complete the goal of the definition process. The author concludes that the sources in the scientific discipline without generally recognised notions insufficiently define the goal of definition process.

The definitions of ‘risk’ vary. Table 2 summarizes information about the definitions. Definitions are described, first, by length, short, up to 10 words, medium length, up to 30 words, and long, more than 30 words. Second, by structure, simple structure – the decisive concept of the concept ‘risk’ content and limiter of the decisive concept of the content, moderately complex structure – the decisive concept of the concept ‘risk’ content and the limiter of the decisive concept of the content the concept of action or exposure, the concept of the impact of the action and complex structure – which, compared to moderately complex structure, has other component. Thirdly, specificity of the definition, including errors of the definition.

Table 2

**Structure of concept ‘risk’ definition**

Source no.	Definitions	Comment about lenght and structure of definitions
1.	Something that may prevent project success in terms of profitability, delivery, or quality of the delivered product if the risk is not managed effectively.	Medium length, moderately complex structure: the decisive concept of the concept ‘risk’ content, the concept of action and the three concepts of the impact of the action. Additional information about the concept of the impact of the action. The definition has a circle, because the definition uses the concept ‘risk’.



2.	The possibility of loss or injury.	Short, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content.
3.	The measurable possibility of losing or not gaining value. Risk is different from uncertainty. Uncertainty is not measurable.	Medium length, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content. Second part of the definition does not affect the 'risk'.
4.	External factors and events that could affect the progress or success of the project. Risk is the likelihood that an assumption will not hold true, and risks can also vary among assumptions. Some may be very probable or almost certain to happen, while others may be highly unlikely. The combined analysis of importance and risk provides a solid approach to managing the assumptions of a project.	Long, simultaneously simple and complex structure, because the definition contains two separate definitions. The first definition. Moderately complex structure: two 'risk' decisive concepts, concept of exposure and two concepts of the impact of the action. Second definition. Simple structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content. The definition contains additional information which does not relate to the concept 'risk'.
5.	External factor that might jeopardize the expected results of the project. Risks are related to assumptions at each level of the logical framework matrix.	Medium length, moderately complex structure: the decisive concept of the concept 'risk' content, the concept of action and the concept of the impact of the action. The definition contains additional information which does not relate to the concept 'risk'.
6.	The combination of the probability that a program or project will experience an undesired event and the consequences, impact, or severity of the undesired event were it to occur. The undesired event may come from technical or programmatic sources (e.g., a cost overrun, schedule slippage, safety mishap, health problem, malicious activities, environmental impact, failure to achieve a needed scientific or technological objective, or success criterion). Both the probability and consequences may have associated uncertainties.	Long, complex structure: the decisive concept of the concept 'risk' content and the limiters of the decisive concept of the content. All limiters of the concept 'risk' content have their own structure with own limiters, actions and exposures. Limiters have different content. The definition contains the explanation of another concept and additional information.
7.	The conditions that would prevent a successful means-ends relationship.	Short, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content.
8.	Risk is often characterised by reference to potential events, consequences, or a combination of these and how they can affect the achievement of objectives. Risk is often expressed in terms of a combination of the consequences of an event or a change in circumstances, and the associated likelihood of occurrence.	Long, simultaneously simple and complex structure, because the definition contains two separate definitions. First definition. Moderately complex structure: the three decisive concepts of the concept 'risk' content, the concept of action and the concept of the impact of the action. Second definition. Moderately complex





		<p>structure:          the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content,          first has two limiters of the limiter, second one the limiter of the limiter.</p>
9.	<p>Effect of uncertainty on objectives.          NOTE 1 - An effect is a deviation from the expected — positive and/or negative.          NOTE 2 - Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).          NOTE 3 - Risk is often characterized by reference to potential events and consequences, or a combination of these.          NOTE 4 - Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.          NOTE 5 - Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.</p>	<p>Short, moderately complex structure: the decisive concept of the concept 'risk' content and the concept of the impact of the action.          The definition has five notes, if assuming that the notes are an integral part of the article and then the definition has complex structure.</p>
10.	<p>Refers to any factor that may adversely affect the successful completion of the project in terms of achievement of its outcomes, delivery of its outputs, or adverse effects upon resourcing, time, cost or quality. The higher the risk of the project, the higher the probability that it will fail.</p>	<p>Medium length, complex structure: the decisive concept of the concept 'risk' content, the limiter of the decisive concept of the content, the concept of action, the concept of the impact of the action and description of concept of the impact of the action.          Definition contain additional information which does not relate to the concept 'risk'.</p>
11.	<p>A measured estimate of the likelihood that a project will fail. The higher the risk, the higher the probability of the project failing. Risk is analysed as part of the project planning process.</p>	<p>Short, moderately complex structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content, the concept of action and the concept of the impact of the action.          Definition contain additional information which does not relate to the concept 'risk'.</p>
12.	<p>See also "Assumptions". Risk is the probability that an event or action may adversely affect the achievement of project objectives or activities. Risks are composed of factors internal and external to the project, although focus is generally given to those factors outside project management's direct control.</p>	<p>Medium length, moderately complex structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content, the concept of action and the two concepts of the impact of the action.</p>
13.	<p>The likelihood of the occurrence of an event. Generally, the event is a negative one like project failure, but may also be a positive event, like the early completion of a task.</p>	<p>Medium length, moderately complex structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content and the concepts of the impact of the action.          Definition contain additional information</p>



		which does not relate to the concept 'risk'.
14.	An uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective.	Medium length, complex structure: the two decisive concepts of the concept 'risk' content, the two concepts of the impact of the action and the impact object.
15.	A measure of future uncertainties in achieving program performance goals within defined cost and schedule constraints. It has three components: a future root cause, a likelihood assessed at the present time of that future root cause occurring, and the consequence of that future occurrence.	Long, moderately complex structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content, the concept of action and concept of the impact of the action.
16.	An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.	Medium length, complex structure: the two decisive concepts of the concept 'risk' content, the concept of action, the two concepts of the impact of the action and the impact object.
17.	The probability that a project will experience undesirable events, which may create, cost overruns, schedule delays, or project cancellation. The identification, mitigation, tracking, and management of those elements creating the risk situation.	Long, moderately complex structure: the decisive concept of the concept 'risk' content, the two concepts of action and the two concepts of the impact of the action.
18.	Risk is the cumulative effect of the chances of uncertain occurrences, which will adversely affect project objectives. It is the degree of exposure to negative events and their probable consequences. Project risk is characterized by three risk factors namely: risk event, risk probability and the amount at stake. Risk is the opposite of opportunity.	Long, moderately complex structure: the decisive concept of the concept 'risk' content, the two limiters of the decisive concept of the content, the concepts of action and the concept of the impact of the action.

*Source: Compiled by the author*

All the definitions of 'risk' were found in the glossary chapter. Size of the definitions is different, definitions from several sources include additional information. The whole definition was used in the study. In the definitions there are 722 words in total, original words are 254, or 35%. The 10 most common words (nouns, verbs, adjectives, or adverbs) are project 21, risk 20, event 13, may 9, consequences 7, likelihood 7, probability 7, objectives 6, will 6 and affect 5. Table 3 summarizes the information about the concepts used in the definitions of 'risk' and the definitions of the used concepts.

Table 3

**Information about concepts used in the definitions of 'risk'**

Source no.	Decisive concept or concepts	Concepts used in the definitions	Concepts definitions
1.	something	prevent, project, project success, profitability, delivery, quality, delivered, effectively	Defined concepts in the glossary – project, for 'delivery' and 'delivered' is concept close to the definition "deliverable", for 'prevent' is 'preventive action'. There are no definitions for all other concepts.
2.	possibility	loss, injury	Concepts not defined.
3.	possibility	measurable, possibility, value, uncertainty	Concepts not defined.



4.	factors, events	external, affect, progress, success, project, likelihood, assumption, probable, unlikely, analysis of importance, assumptions	Defined concepts – project, assumptions.
5.	factor	external, jeopardize, project, expected, results, assumptions, logical framework matrix	Defined concepts – project, result, logical framework matrix.
6.	combination	probability, program, project, undesired event, consequences, impact, severity, occur, uncertainties	Defined concepts – program, project, partly for ‘technical or programmatic sources’.
7.	conditions	prevent, successful, means-ends relationships	Concepts not defined.
8.	reference	potential event, consequences, combination, affect, achievement, objectives, circumstances, likelihood, occurrence	Defined concepts – objectives.
9.	effect	effect, uncertainties, objectives	Concepts not defined, for ‘effect’ and ‘uncertainty’ are definitions in the notes.
10.	factor	adversaly affect, succesfull completion, achievement, outcomes, delivery, outputs, effects, time, cost, quality	Concepts not defined.
11.	estimate	measured, likelihood, project, fail, probability	Defined concepts – estimate, project.
12.	probability	event, action, adversely, affect, achievement, prokect, objectives, activities, factors, external, internal, control, project manager	Defined concepts – project, objective.
13.	likelihood	occurence, event, negative event, failure, positive event, complition, task	Defined concepts – project.
14.	event, condition	occurs, positive impact, negative impact, project objective	Defined concepts – objective.
15.	measure	future uncertainties, achieving, program performance goals, cost, schedule, constraints, future root cause, likelihood, occurring, consequence, future occurence	Defined concepts – consequence, future root cause.
16.	event, condition	uncertain, occurs, positive effect, negative effect, project’s objectives	Defined concepts – project.
17.	probability	project, undesirable event, risk situation	Defined concepts – project.
18.	effect	cumulative effect, chances, uncertain occurences, affect, project, objectives, negative events, probable consequences, risk factors, probability, opportunity	Defined concepts – project.

*Source: Compiled by the author*

The study author considers that that none of the concept ‘risk’ definiton is sufficient, because not the most important concepts definitions. In the 16 definitions not defined decisive concept or concepts. The definition of concepts is important because of many concepts and terms in project management are not defined in a similar or comparable manner or not generally



accepted. For example, the concepts ‘event’ and ‘something’ have different definitions. The concepts ‘event’ and ‘something’ have very wide content, therefore the content of the concept ‘risk’ in the ‘risk’ definitions with both concepts may be different. In the study on the use of concept ‘event’, it was found that ‘event’ not used enough to contextually understand the content of the concept ‘event’ (Uzulans, 2017).

Separate notions may be self-evident, but their definition is required for defining the term ‘risk’ content correctly. A different understanding of the concept ‘risk’ content can identify a different way of identifying and analyzing and this in turn may affect the content and form add a risk register.

The risk register is a document of the project management, which contains information about identified risks, results of risks analysis and management. Qualities of a risk register affects the projects risk management and the affect all project. Accordance to the concept ‘risk’ definitions can be identify the risks, because if we know who are the risk, we know where and who you want to find. Accordance to the different concept ‘risk’ definitions we create the different risk registers.

Table 4 summarizes information about the concept ‘risk’ definitions and the definitions possible impact on a risk register. Definitions are evaluated, first, by accordance, inadequate – the definition cannot be used to create a risk register, partially compliant – the definition may be used partially and relevant – the definition may be used in full, because are all definitions of concepts (content decisive concept, limiter of content decisive concept, concept of action or exposure, concept of the impact of the action and others) used in the definition. In addition, it was assessed what could be improved for higher rating.

Table 4

**Evaluation of the concept ‘risk’ definitions**

Source no.	Specificity of the definitions	Evaluation of the definitions
1.	The decisive concept is of very wide content. One of the concept of the ‘risk’ definition, i.e. ‘project success’, is explained.	Definition is partially compliant, because information of the one concept can be used.
2.	The decisive concept is of very wide content. The notions of the definition are not defined.	Definition is inappropriate.
3.	The decisive concept is of wide content with one limiter ‘measurable’. The notions of the definition are not defined.	Definition is inappropriate.
4.	The concept ‘risk’ definition includes two separate definitions. In both definitions decisive concepts are very wide content. Long definition with an explanation that is not need for ‘risk’ definition. The two notions of the definition are defined.	Definition is partially compliant, because the information of one of the concepts can be used.
5.	The decisive concept is of very wide content. The three notions of the definition are defined.	Partially compliant, because the information of two of the concepts and partly of one other concept can be used.
6.	The decisive concept is of wide content with limiters. The two notions of the definition are defined.	Partially compliant, because information about the causes of the one decisive concept can be used.
7.	The decisive concept is of very wide content. The notions of the definition	Definition is inappropriate.



	are not defined.	
8.	The definition of the concept 'risk' includes two separate definitions, the decisive concept is of very wide content. The notion of the definition is defined.	Definition is inappropriate.
9.	Specific definition, short definitions and five notes. The decisive concept is of wide content In the first note the decisive concept is defined, the second note includes information about the concept of the impact of the action, the third and fourth complement the concept 'risk' with new decisive concepts, the fifth defines 'uncertainty'.	Definition is inappropriate. If we assume that the notes are part of the definition, then partially compliant, because the information from Notes 1, 2 can be used.
10.	The decisive concept is of very wide content. The notions of the definition are not defined.	Partially compliant, because explanation of the definition of successful completion can be used.
11.	The decisive concept is of very wide content. The two notions of the definition are defined.	Partially compliant, because the information of two concepts can be used.
12.	The decisive concept is of wide content. The two notions of the definition are defined.	Partially compliant, because the information of two concepts can be used.
13.	The decisive concept is of wide content. The notion of the definition is defined.	Partially compliant, because information of one concept can be used.
14.	The two decisive concepts is of wide content. The notion of the definition is defined.	Definition is inappropriate, because information of one concept cannot be used.
15.	The decisive concept is of wide content. Two definition notions are defined.	Definition is inappropriate, because information of two concepts cannot be used.
16.	The two decisive concepts is of wide content. The notion of the definition is defined.	Definition is inappropriate, because information of the one concept cannot be used.
17.	The decisive concept is of wide content. The two notions of the definition are defined.	Definition is partially compliant, because information of one concept can be used.
18.	The decisive concept is of wide content. The notion of the definition is defined.	Definition is partially compliant, because information of the one concept can be used.

*Source: Compiled by the author*

A definition may not provide enough information to create a risk register. At the same time, the definition would be sufficient to create a risk register according to the content of the concept 'risk', including the decisive concept or unambiguous interpretation of the concept. If the decisive concept is with a wide or very wide content, then there are several definitions for these concepts. Some definitions have more than one decisive concept with different definitions of the decisive concept. In both cases the creation of the risk registers accordingly to the concept 'risk' content is difficult (Source No. 2, 3, 4, 7, 8, 9, 14, 15, 16). For example, if one or one of several decisive concepts is 'event' and concept 'event' is not defined, then it cannot be concluded what the identification objects are. The concept 'event' has different definitions and



the use of 'event' in source texts is not enough to determine the concept content (J.Uzulāns, 2016). If the concepts used in the definition of 'risk' have been defined or explained this provides more information for the creation of the risk register (Source No. 1, 5, 6, 10, 11, 12, 13, 17, 18).

### **Conclusion**

The methodological analysis of project risk management sources provides for analysing the definitions of the concept 'risk', study of the defining manner, definition type and structure of definitions and evaluating the possibility of use of the risk registers.

The author believes that the conducted research accounts for the confidence that ontological and epistemological analysis is a method in which, together with the methodological analysis, it is possible to perform the analysis of risk management sources aimed at improving risk management, especially for creating the risk register.

For the methodological analysis 18 sources are selected. The length of the sources varies from 11 to 440 pages, 13 sources are project guides and 5 sources are project risk management guides. The methodological analysis is used for the glossary analysis of the sources by evaluating the number of definitions and specific attributes. The specific attributes of the glossaries are an significant component because they may contain information about the importance of the defined concepts. Only Source No. 13 contains objectives of defining and Source No.16 defines the need for the definition. Source No. 13 is in the fourth place by defined notions against the original words, Source No.16 ranks first, 9.9%. In Source No. 16 written than "While many of these terms are not mentioned in the body of this guide, they are nonetheless important to understanding Project Management" (State of Michigan, 2004).

The definitions in the sources are of different lengths and structures. To determine what should be included in the risk register we can use the information from the definition of the concept 'risk'. The length and structure of the definitons is not a factor in determining the amount of information to be used for the risk register. However, the results of the study are not sufficient to make reasonable conclusions about the possibilities of using the information provided in the definitions.

Important additional information can be found in concepts that are used in the concept 'risk' definition, especially when the decisive concept is a concept with a very wide content. Source No. 9 and No.11 provide the definition of the decisive concept. In both cases, the information on the decisive concept is usable for the risk register.

Finishing the research series, it can be concluded that the study needs a larger number of sources than have been examined in all previous studies. It is also necessary to perform the ontological, epistemological and methodological analysis of the same set of sources.



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## PROPOSING NEW DIRECTIONS ON PROJECT MANAGEMENT PROFESSIONALISATION – WITH A SOCIAL EXCHANGE PERSPECTIVE

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### Abstract

**Purpose** – The purpose of this paper is to present the potential novel applications of social exchange theory (SET) in theorising project management professionalisation and how this new understanding can guide project management professional associations in engaging their stakeholders and delivering the intentions of the association.

**Approach** – This paper is literature review based and conceptual. It identifies and applies the tenets of SET, which are resource, power and attachment based on the perception of the beneficial resource. These were used to model professionalisation strategies' frameworks in a well-researched professionalisation process; American educators. Thereafter it compares current project management associations' situations with conceptual frameworks developed from the analysis of the established profession.

**Findings** – The nature of the relationship between project management professional associations and their present and potential members was theorised. This revealed possible explanations for problems of project management professional associations on assisting the field to obtain power. Solutions for professionalising project management suggested by SET include enhancing the value of the resources provided by associations and on understanding the perceptions of value from industry-specific contexts to gain power within certain workplaces and sharing responsibilities for certain organisational goals.

**Implications:** The paper has presented alternative view on power getting process within professionalisation for project management, also has point out important gaps and question for research into the current status of project management professionalisation.

**Keywords:** *Project management professionalisation, professional association; power; social exchange theory*

**JEL code:** L84, O14, O35

### Introduction

Projects are regarded as one of the most appropriate approaches to deliver organisational goals and create value. Increasingly, industries and sectors require project management knowledge and skills to assist in their business success (Konstantinou E., 2015). In response to the needs of employers and stakeholder alike who are seeking guarantees of project management performance and the need for developing project practitioners, it has been seen as desirable that project management develop into a profession (Hodgson D. and Muzio D., 2012). Accordingly, various associations attempt to conduct professionalisation projects within the field of project management such as the Association for Project Management (APM) in the United Kingdom, and Project Management Institute (PMI) in America, which now has successfully expended its global branches (Morris PWG., 2012). These associations attempt to professionalise project management using tactics such as establishing a project management body of knowledge, providing memberships and certifications. Since project management professional associations are the key roles in professionalising project management (Morris PWG. *et al.*, 2006), this article will discuss the insights of professionalisation around the operations of professional associations and associations alike organisations, to propose a new direction on professionalising project management.

For the traditional professions, such as law and medicine, professional associations mainly engage the state stakeholder by demonstrating that their high-level practice delivers public interest, whilst in turn obtaining legitimacy from the state (Suddaby R. & Muzio D., 2015). This public-interest direction was later challenged by the 'sociological' research perspective on professions, which claimed that professionalisation can be caused by self-interest of the occupational groups. It is argued that one of the main





purposes of professionalising an area is to obtain power that enable professions to take control of their clients and labour markets. Differently to labour unions which find their root in conflicting interests and promote bargaining power of occupations contra their employers, professional associations seek to empower the group by "...dissemination of information, establishment of standards, and improvement of public relations through publications and lobbying" (Hovekamp T., 1997). The power seeking perspective of professionalisation identified the existence of 'Semi-professions', which are "manifesting certain characteristics of a profession, however, it falls short of the standing held by such professions as medicine and law" (Horowitz TR., 1985). Semi-professions cannot completely monopolise their area like traditional professions with state legitimacy, due to their roles the workplaces, the most typical of such workplaces is professional service firm.

As predicted by Wilensky (1964), there will be increasing numbers of groups want to be professionalised but the authority of traditional professions is hard to be achieved. However, getting power is a continuing theme in the discussion of professionalising various groups. Project management also work in organisational settings but serves in diversifying workplaces, struggles more to obtain power than the semi-profession (Fincham R., 2012). Furthermore, according to Hodgson, Paton and Muzio (2015), even though the initial discussion of professionalising this area of management dates from 1992, it is still hard to find an effective path to conduct project management professionalisation because it is hard to answer why such managerial occupations "wish to" be professionalised. On the other hand, it is hard for project management to determine the source of power due to project management subject to the strategic requirements of the companies. Therefore, it is hard for project management to find a path to obtain the power as a profession under the existing the perspectives in studying professionalisation.

Very few analyses specifically focus on the factors behind the motivations of conducting project management professionalisation and how professional associations assist the profession to get the power that emerges in the process. This leads the authors to explore the value of the tactics of and the source of power of project management associations, through a lens of social exchange theory (SET). Exchanges exist in both daily life and markets. They include, but are not limited to, economic transactions of tangible goods. According to Turner (1978), social exchanges are distinct from pure monetary exchanges, it can be extended into more complex social settings, they can occur among both individuals and groups (Blau PM., 1964). SET demonstrates that behaviours are motivated by rewards, through the giving and receiving of material or non-material goods (Homans GC., 1958). A similar thought was included by Lawler (2001) when defining social exchanges as aimed at generating benefits, specifically those which cannot be achieved by one side alone, occurring when "each actor has something the other values". Effective exchanges bring commitment and make actors think the effects are tight with the relationships (Lawler E, 2001). What is more, SET provides alternative views on the power within a relationship. Different with purely focusing on explicit power which is taking control, power in SET an also be implicit, which is an ability of attracting other actors to join the exchange networks and make other actors depending on a resource provider. In exchange relationships, power is not necessarily is 'winner power over losers', it provides a convincing approach for analysing power (Baldwin *et al.*, 1978) and it is not necessarily being bargaining power (Cook KS. *et al.*, 2006). Under the view of social exchange, it is believed that the actors that have more valued resources will have more power (Cook KS., Cheshire C. and Gerbasi A., 2006). According to Turner (1978) when a side of actors have more choices, they have more power in decision making during setting the exchange relationship. Specially, according to Cook *et al.* (2006), power is derived from the resource of connections. Therefore, under the perspective of SET, professionalisation is a process of gaining commitment by providing valuable resources. Meanwhile, the alternative understanding of power proposes that the power of a profession is not necessarily fully taking control of the clients or markets; it could be the motivations for engagement and increase the dependence from others.

Unclear motivations for project management professionalisation according to Hodgson, Paton and Muzio (2015) and potential novel understandings lead the core question of this article: what is the resources motivate actors within project management professionalisation? The two fundamental objectives this article addresses are in what new value can be revealed in the application of this novel theoretical framework to researching the status of project management professionalisation and what new tactics could be suggested for project management professional associations in developing project management as a profession with the new framework. In order to develop a framework of the strategies for project management associations which categorise the resources valued by the participants during the process of professionalisation, an in-depth analysis of American teachers' professionalisation will be



performed using SET. According to Saks (2016), in America, “teachers and other educational professionals were seen as having power to define the situations for their students and to impose the identity on them”. American teaching effectively built its identification as a semi-profession and has obtained commitment of the professionalisation process, which reflected effective exchange relationship according to SET. Teaching is an appropriate model as it has been investigated for a long time and the research materials are fruitful. Also, it shares similarities with project management, which are: the teachers are subjected to the needs for the local school just as project practitioners have to service their company’s strategic requirements, they both not depend on the professional services firms to professionalise the area; the factors impacting the professional performances are complex.

## **Research results and discussions**

### **Categorising resources for exchange during professionalisation: the case of American teaching**

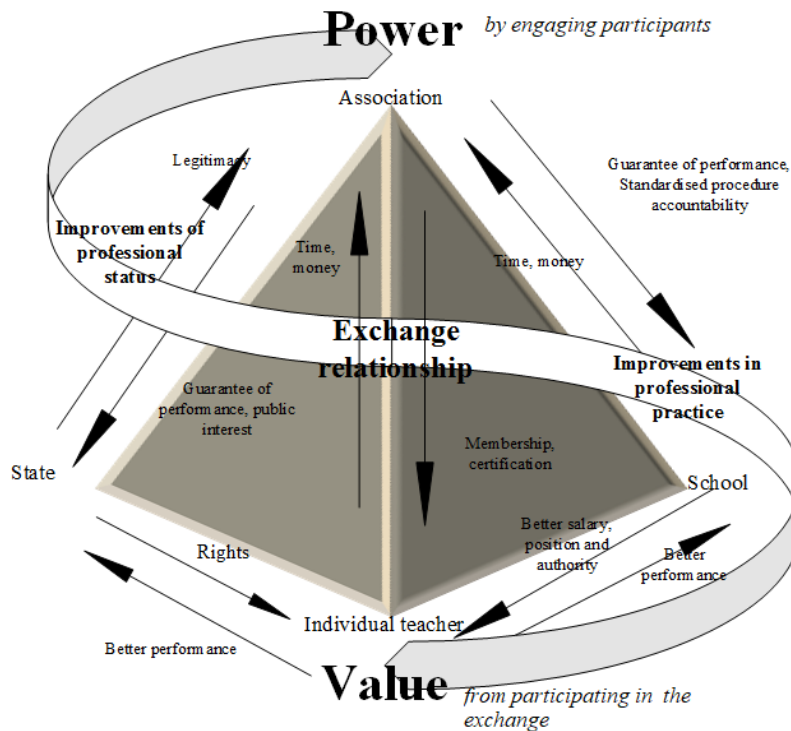
The actors in exchange relations within teaching professionalisation in America are the state, schools and individual teachers, which establish the exchange links with the professional associations. These actors are engaged into relationships with the profession by the rewards they wish to obtain. Teaching is not a traditional profession that enjoys a high-level of legitimacy rights from the state, however one of the main actors asking for the exchange relationship is the state. Demands of the state led to the development of certification programme by the professional teaching associations and association alike union in America, such as the North Central Association, Cooperative Committee on Science Teaching, the National Education Association (Jonas R., 1943). Similarly, the discussion of teacher performance was mainly related to the state’s considerations for maintaining the quality of public education (Popkewitz T., 1994). Schools also looked for help from professional associations. It is noted that in the environments of teaching practice, schools, were tightly associated with the building of National Board for Professional Teaching Standards, (Goldhaber D., Perry D. and Anthony E., 2004), for example, a community to arrange the staff development plans and better evaluate the progress of the schools (Belson SI. and Husted TA., 2015). Similarly, Hutt, Gottlieb and Cohen (2018) identified that, by supporting the standardised assessment developed by American Association of Colleges for Teacher Education, schools wanted to increase the accountability of the teachers. Individual teachers, participated in the teaching communities and obtained certification to develop their skills as well as assisting their career development (Goldhaber D., Perry D. and Anthony E., 2004), hence teachers were also involved in the exchange relationships with the professional associations. Certified teachers or teachers with memberships of the professional associations, representing the profession, exchange with the state and schools as the ‘ecology of the profession’, individual teachers, by obtaining resources such as certification, training and educations to improving their performance, were seeking for improve their “substantial workplace authority, relatively high compensation, and high prestige” (Ingersoll RM. and Perda D., 2008). According to SET, obtaining benefits is the key motivation to building and maintaining an exchange relationship. From the examination of the categories in the case of American teaching professionalisation, the key intended rewards and the exchange relationships state and schools can be identified.

It can be seen that the state and the schools attracted by the similar perceptions on the value of professionalisation of teaching, which are the tactics of professional associations can create higher-level educational performance of the individual teacher. The value of the education, training and certification tactics of the national professional associations were assessed by whether they directly impacted the grades of the students (see: Goldhaber and Brewer (2000); Belson & Husted (2015); Kusumawardhani (2017)). By using cases of music teacher certifications from National board, Standerfer (2007) observed that in getting certifications, the teachers can effective reflect the assessment content in their practice and interaction with other colleagues, and finally further benefit in-classroom performance (Sato M., Wei RN. & Darling-Hammond L., 2008). Likewise, Cheng, Hsu and Chiou (2012) that when compared to non-certified teachers, the certificated teachers show a positive judgement in their teaching performance due to the assistances of national board. In a different view, Belson and Husted (2015) used students’ performance to explore the certificated teachers’ achievements, and found a the scores of students are improved by certified teachers. Competences such as creativity, flexibility (Sachs J., 2010), and discretionary judgement (Hargreaves A. & Fullan M., 2012), were also examined by the scholars. Specially, apart from valuing the high-level performance, the schools also sought to obtain better accountability of teachers (Solbrekke TD. and Sugrue C., 2014) and standardised procedures for teaching practice (Bourke T., Ryan M. and Lloyd M., 2016). Thereafter, it can be concluded that what state and



schools were looking for was direct and indirect improvements on the performance of the teacher while the school may have more interest in standardising procedures of governance.

These positive relations show that the programmes of professionalising teaching are able to deliver the value expected by the school and the state. Mok (2010) noticed that teaching can be considered as a semi-profession which is well-developed. According to Horoi and Bhai (2017), schools depend on the effective evaluations of teachers to ensure the quality of teachers' performance, the importance of the certifications was increasing in the relationship. This indicates professional operations are getting the power under the view of SET, which is getting the reliance from other actors. In the meantime, the initial intention of National commission to develop certifications project is to set the tight connections between the standards and performance which shows the high commitment on developing professionalisation project of teaching (McConney A., Schalock M. and Schalock M., 1998). Under the view of SET, it asserts that the effective relationships are based on the perception on effects, hence this became strong power basis for the profession with such kind of standard based resources in the exchanges during professionalisation process. Finally, the power emerging process during the exchange relationships between the profession and the 'ecology of the profession' where existing multiple actors, within professionalising teaching in America can be concluded as the following figure:



**Fig. 1. SET framework in teaching professionalisation**

**Discussion: similarities and differences in professionalising project management**

According to SET, project management associations need to provide the valuable resources to engage the participants into the relationships and to obtain the power within exchange relationships. Similar resources are provided by associations within the area of project management. The Association for Project Management (APM) in the United Kingdom, state that one of the goals of membership is to 'enhances your status with colleagues and employers alike and help you stay ahead of the competition' (APM, 2018). PMI stating 'Making project management indispensable for business results' (Maritato M., 2012).

It is found that in the field of project management, provided resources cannot guarantee the claims from the beginning of the exchange. Certification was a key resource in the status improvement of US teaching and in strengthening the role of firstly the unions and later the professional associations in the area. However, in a survey of IT project managers and the outcome of their projects, Joseph and Marnewick (2017) indicated when a project manager was in possession of professional certification of



PMI, there was no associated improvement in successful project outcomes in terms of time, cost and quality. Likewise, Catanio, Armstrong and Tucker (2013) found that the certifications have not made the activities of project managers in project scope management, project time management and project cost management more effective. In addition, Tucker (2013) argues that the formal training and certification cannot lead to better conduct, due to the changing environments that application of knowledge and skills in project management face. Apart from discussing the delivery of projects, it was also expected that project management certification was able to add competencies (Hodgson D., Paton S. and Muzio D., 2015). Morris *et al.* (2006) questioned whether these soft skills and situated knowledge could be effectively standardised and be taught. Although Blomquist, Farashah and Thomas (2017) concluded from surveys conducted among project managers that motivations behind individuals getting project management certification are related to a desire for improvement to capabilities, when comparing certification with soft skills such as leadership, communication skills, writing, and verbal reporting abilities, which Stevenson and Starkweather (2010) identified as the hiring criteria for employers, having certifications is not necessarily sufficient without other, more direct competencies asked by employers such as communication in multiple levels and attitude. Finally the proposed project management standards of the project management associations do not correlate with performance (Crawford LH., 2005). Therefore, Zwerman *et al.* (2004) further pointed out it is hard to recognise project management as a profession despite having traits of the ‘trait theory’ of professions.

As the positive effects were not associated to the resource, it is hard for project management professional associations to make the exchanges effective. The failure to guarantee or deliver better practice by the value proposed by the associations, makes professional associations undermine the value of this resource in the exchange, hence power cannot be obtained from the exchange process. Therefore, Fincham (2012) suggested project management as a quasi-profession as it is with attempts on professionalisation but cannot follow a clear path. It can be briefly concluded that, in terms of certification and training, project management professionalisation cannot guarantee positive impact on practice. In terms of the membership and network opportunities, there is less evidence of the valuable resources from the profession in the area of project management professionalisation research.

The following table presents categories of exchange extracted from the case of US teaching professionalisation and a comparison of the current value exchanges in PM professionalisation as identified by authors:

Table 1

Resources of Social Exchange in Professionalisation offered by associations	Identified value in professionalisation of US teaching	Basis for power according to SET	Matching evidence from project management
Professional education/training	Positive influence on students' academic achievement (Goldhaber D. and Brewer D., 2000) Moral conducts and adaptability (Hargreaves M. and Fullan A., 2012)	Perception of value; Connection to positive effects	No influence on project outcome
Accredited education	Standardised procedure Accountability (Belson S. and Husted TA., 2015)	Connection to positive effects	Missing
Professional certification	Positive influence on students' academic achievement (Kusumawardhani I., 2017)	Perception of value; Connection to positive effects	No influence on project outcome
Membership	Teachers' creativity and flexibility (Sachs J., 2010) Adaptability and efficacy of teachers (Hadar L. and Brody D., 2010)	Perception of value	Missing



Network opportunities from professional communities Community of practice	Shared experiences (Hargreaves M. and Fullan A., 2012) Better means diagnosis on education practice (Schlager M. and Fusco J., 2004)	Perception of value	Missing
Portfolio assessment of key occupational artefacts	Guarantee of teachers' quality (Hutt E., Gottlieb J. and Cohen J., 2018)	Perception of value; Connection to positive effects	portfolios of work experience are used at the highest level of APM/PMI certification

*Source: Authors' construction*

According to SET, the alternative choices owned by another side also can negatively influence the power emerging in exchange relationships. The authors argue that, in the field of project management, the participants of the professionalisation are facing various alternative choices rather than engaging in the exchanges in professionalising the area of project management, which is rarely observed in the traditional professions and well-developed semi-professions. These alternatives weaken the power of project management professional associations. There is a widely accepted argument that when compared to a systematic body of knowledge, the soft skills and the lessons learned from experience are more essential in developing a successful project manager (Pant I. and Baroudi B., 2008). Therefore, rather than choosing to follow the hard skills recorded in the body of knowledge published by professional associations, learning and applying experience may be preferred in managing projects. In addition, project management is customer-oriented, which means that the knowledge of project management is somehow localised rather than generalised. As it was stated by Hodgson and Paton (2016), there are many project managers that will also rely upon company and industry dominated knowledge as well as a formal and generalised one. The issues of localisation also bring alternative choices on engaging exchanges with professional associations. For example, during interviewing project managers, Hodgson and Paton (2016) found that the strong local-orientation of project management leads to strong in-company communities, which become a strong 'competitor' of the communities built by project management professional associations. The internal training run by large organisations themselves also become an alternative when project management practitioners are seeking beneficial exchanges. What is more, project managers are usually being temporarily transferred into a project, which may weaken the awareness on the importance of managing projects. This will lead to the feelings that the resources provided by project management associations are less valuable. Also, project management nowadays is chosen as alternative career choice by those who previously worked in technical positions (Konstantinou E., 2015). Under this situation, the former work and education background competes with the project management communities in building exchange relationships.

### **Conclusion and recommendations**

Professionalising project management is expected to response the expected value of various participants, yet there is no clear trajectory for project management to follow. Under previously power gaining perspective, the research of professionalisation strategies is usually limited to rhetorical tactics within the groups, such as identity of being a member (Leigh J., 2013). However, it is argued that the identification of professions are emerged from discourses rather than established upon a real foundation. Furthermore, to focus more on the process of becoming professional in interacting with multiple actors, leads to the discussions on how project management professional association effectively understand the motivations of professionalisation and better engage the participants in the ecology of profession. Since effectively building relations using identified organisational needs is essential for project management today, this requires researchers and professional associations to rethink the current project management professionalisation status and what indeed the certification and other professional programmes are delivering.

It is argued that project management is hard to be fully professionalised like law, medicine, engineering and accounting, hence the power owned by project management is hard to reach the widely



discussed power in the researches of profession, which is taking full control over the clients and labour market. SET is a theory which was applied in various disciplines, to identify the value for motivating establishing the relationships. Also, power can be analysed under new perspectives such as the ability of engagement and based on value, which is different with the power in the researches of profession. Therefore, the authors believed that the application of SET can provide fruitful distinctions. By applying SET in American teaching professionalisation, the resources provided by professions which are valued by another side in the exchange relationships is mainly concreted on the outcome of professional practice. Teaching as a profession in America is able to guarantee the performance and contribute to the competences of teachers hence indirectly improves the practice by a set of strategies of professional associations. While in terms of project management, it was concluded that in term of delivering better practice, project management professional associations still not able to provide more evidence on its effectiveness on guaranteeing better projects' outcome, as well as not being able to contribute on competences of project practitioners.

Since providing the resource which is valued by other actors is essential in building and developing the relationships and gain the power, it is essential for project management association to rethink the strategies to deliver better practice. Difficulties arise, however, with standardised systems. Currently, project management associations seek to certify project practitioners more effectively by validating their knowledge, competence factors and experience. Nevertheless, in a survey of IT project managers, Joseph and Marnewick (2017) indicated even when project managers were in possession of professional certification, there was no improvements on project success in terms of time, cost and quality. suggesting that associations claims for the value of their certifications are possibly empty, with no evidence that a certified project manager is further capable of managing projects successfully. In the meantime, it is asserted in terms of training and education, the competences of being a good project manager, such as leadership and effective communication skills, should be developed from these processes.

As the knowledge is the basis for the certification and building the occupation, the knowledge need to be more tightly affect on expected, which is delivering better practice. To make this resource more valuable, it is suggested by Konstantinou (2015) to better involve the project management knowledge which is highly oriented by application, engaging practitioners when developing body of knowledge could be a help approaches. Another main reason for the current phenomenon in project management professionalisation is the nature of project management, which is highly dependent on specific companies, and the desirability of the career path and identity of the project manager is still not the first choice in many industries. This leads to difficulty providing distinguishing resources in order to compete with other choices. The authors suggest that project management associations should further narrow their service according to the preference of different industries or types of employers, which is to understand different perceptions of value in exchange. Given that different skills have different application approaches in the various type of project (Joseph N. & Marnewick C., 2017), there can be different level of branches of the standards for the applications in governance and operations. In addition, the strategies also need to be adjusted according to the different conducts. Especially after identifying that the project management is usually chosen as secondary position in organisations, the value of certification can be better marketed if demonstrating the function of assisting the role transformation from technical roles to management positions.

In terms of researching project management professionalisation, there is greater recognition of the interactions between professions and their locations, leading to the current concern with how to better establish relationships with the external stakeholders of professionalisation process. Furthermore, there are several gaps in the research which can be identified from the table, such as there are missing evidences on examine the value of memberships and networks in professional communities within the field of project management. Also, as current debates are focusing on the knowledge and certifications, the further questions raised: how can such associations with no currently provable impact on certificated project managers' performance wield power?



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## **CHANGING THE WORLD ONE PERSON AT A TIME**

### **LIVING SUSTAINABILITY SMART COMMUNITY MODELLING IN ACTION**

*Keynote speaker contribution*

#### **Mark Reeson**

Professor of Project Management  
Director of Project Management  
M R Project Solutions Limited



When you think of Saudi Arabia, what comes to mind?  
Maybe you think of oil, deserts and a traditional lifestyle that steps back over a thousand years?  
However, *“With the sands of time, things are changing!”*  
Here is where the story begins.

In September 2015, a decision was made that will alter how projects are delivered in Saudi Arabia, starting at Ministerial level and cascading down throughout the thirteen provinces. One such province, the largest and furthest flung of the East coast, simply known as “The Eastern Province” is leading that change under the guidance of the APM’s best practices.

Within the province’s capital, Dammam, a project is currently finishing its development stage and is preparing for launch into operation this June. But what makes it so special? This project and its project sponsor have pushed the initial boundaries requested by the ministry and is attempting to shatter the glass ceiling of capability. In a region that is home to most of Saudi Arabia’s oil production and is fast becoming the global hub for the chemical industry, a *new style of PMO and project delivery is ready to emerge!*

For so long this region has been fragmented and although covered by multiple municipalities and governed through many ministries, there has never been any major structure to the governance or government of the province. In September 2015 it was decided that this had to change and that a new approach should be undertaken. The first step behind this was to set up a project team within the main Municipality Building in Dammam and then draw in a project team that could deliver the project to change the city, not just for the short-term, but for a sustainable future. The decision was made that the best way to deliver this major change would



be to centralise the strategic planning of the whole region under one roof to be governed by one individual, the head of the Project Coordination and Planning Centre, Engineer Mosaad Al Qahtani. His project team that would deliver this was made up of four different companies spanning eight different nationalities from Saudi Arabians, many other Middle Eastern countries, American, German and Venezuelan, all headed up by an English project consultant, Mark Reeson.

Although there were many major dignitaries involved in the decision making process of what was needed for the new Project Coordination and Planning Centre, using a typical Arab approach to decision making, where the major stakeholder after the Governing Prince Said bin Naif, was the Eastern Province's Mayor, Jamal Nasser Al-Mulhim. With so much notoriety watching over the project this made every step sensitive to the needs of those making the decisions and the community that would be affected by the delivery of this new approach to project management for the whole region.

The first question that had to be asked was, what exactly is this Strategic Project Coordination Planning Centre (PCP) and where did this proposal come from? The PCP was the result of the proposal to centralise the coordination of projects throughout all the municipalities and sub municipalities in the region. For far too long each municipality and civil authority had worked independently from one another, creating a counterproductive working environment. This would then allow and demonstrate for a new way to look at utilising the resources within the Eastern Province more efficiently. What this new approach would offer was a clearer picture of what is happening in the region and more importantly, to allow people to understand why these changes were happening.

Further to this it was decided that a new way of selecting and prioritising projects should be brought into force through the new department. The prioritisation of work would be based on the need of the work rather than simply a wish and to eliminate the amount of redundant work which takes place within the region where roads, rails and electrical cabling is dug up once and then within weeks dug up again. As a further addition to make this work more effectively, it was decided to enlist a team to write a specific bespoke piece of software that could monitor, control and report the whole region in one system to modernise the process of how the municipality's work was recorded. In addition to the requirement of the IT System, there would need to be a new procedural set up for the department and these procedures, objectives and the governance behind them would have to be drafted from scratch, before being proposed to gain the highest level of stakeholder approval.

As a further enhancement to the new Project Coordination Planning Centre, it was also decided to create a new project management approach for delivery of all projects across the region which would involve researching the best approaches to project management and then drafting out a new project management manual so it can be used as a guide book for all project managers working within the Eastern Province. Lastly, one final request by the Governor due to his passion towards the subject, he stated to the Mayor that any approach and any new introductions must meet to the standards he decreed as a sustainable solution. This approach was encapsulated into a new model that had been designed previously called the SMART model which Mark Reeson had previously used to create SMART project and business management. It was decided to uplift this model to cover the full city and then with the addition of the Fanar Consulting approach to increased mobility and create greater accessibility to information, the model was shaped to create the City SMART model.

All this planning was fine but this would therefore also include the training of all the new members of staff joining the department in the procedural changes, the new IT system, on how to manage the Project Management delivery and of course the new model, City SMART. Not wanting to stop at this, the Municipality made a further request within the planning phase, that the project team should further enhance the knowledge of the region with the creation and maintenance of a new asset register for all municipalities and authorities' assets to give a clear understanding of the true status of the inventory of the region's public assets. By doing this and



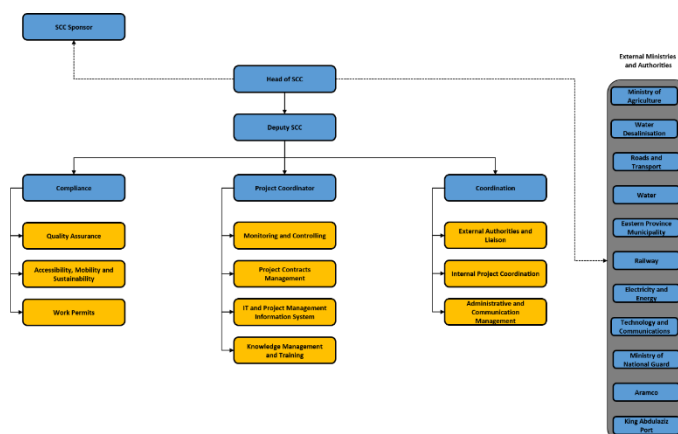
bringing the planning under one department the main objective for the Eastern Province was to have greater alignment and synergy of all the authorities' current plans and then merge them into one singular strategic annual and five-year plan. The last part of the project scope, to create the department, involved the team itself, requiring to locate or build the new PCP office development, load it correctly and then prepare the office spaces for occupation.

Although in principle this seemed logical, one question that was raised regularly was why build the Strategic Project Coordination Planning Centre, after all, why not simply improve each department from within? This question was asked and challenged by many of the ministries that had ran their own organisations and strategies for many years and could not see the benefit of the new centralised approach. Explaining to some of the senior ministries that hold such huge sway of power involved many presentations and reports to demonstrate the importance behind a new way to develop a centralised coordination of all projects for the benefit of the whole region. With the creation of the new department it would give greater focus and visibility to all the municipal projects and not simply the large scale projects that fill the skyline. Explaining to the group that having one department that could show this off would therefore show to the region, its community and eventually, Saudi Arabia as a whole that the Eastern Province could be the flagship behind making a real difference, which further supported the statement made called Saudi Vision 2030 by the Deputy Crown Prince, Mohammed bin Salman where he explained in April 2016, that Saudi Arabia had a new ambition to reshape and to transform its economy by moving away from its reliance on the oil trade.

This announcement came at a very timely moment when questions were still being asked about the viability of such a large-scale change and before long the message was passing through key offices of Dammam about a new vision where their Strategic Project Coordination Planning Centre would become "A Future Model for Decision Enabling and Delivery Support to create a cleaner, smarter city".

So, if this was going to be implemented on such a scale, what would be the role of the Strategic Project Coordination Planning Centre? By creating this new department there was a clear vision now for what it would do and why it was needed. By having one central location for everything project management related for the whole region it would allow for the introduction of a standardised project management governance system. By introducing this it would further be assisted by the procedural work of Fanar Consulting by enhancing the Quality Assurance within the Eastern Province for processes and procedures which it would hope would then increase the stakeholder engagement throughout the municipality with a greater control being taken over the issuance of work permits and licences. Finally, its role would then be cemented by becoming the mobility, accessibility and sustainability champions, initially for the region, but with the correct handling and communication for the whole of the Kingdom creating the first step towards the Deputy Crown Prince's vision for 2030.

Explaining the benefits of a centralised Strategic PCP Centre at first was never easy but four keys areas started to emerge that became the focus of attention of the ministries and the municipalities together. They started to understand that standardised processes and improved productivity would create an environment where their money would go further and at a time when budgets had been trimmed due to international unrest and conflicts on two fronts, having a little extra made a huge difference to how they could manage their own workloads. Also, by having one organisation that could look at the





greater picture geographically, allowed for greater risk mitigation which could lead to improvements that would give an enhanced quality of service with a front-line focus which had never been seen before by promoting the use of risk management and gaining greater awareness to the whole region. With this improved visibility it could show the Eastern Province in a new light and the community as a whole could benefit which would hopefully attract further interest and further business investment for the future. It was imperative that the people of the region and beyond could see what the government were doing and what they were creating for the future. The last of the benefits that became clearer as the planning moved forward was the use of the Supply SMART aspect of the model which allowed an integrated supply chain to the PCP, which could offer greater cost optimisation on all the work that needed to be completed by both the municipalities and the relevant authorities.

All this planning was fine but it was not without many associated risks to the delivery and also post-delivery with the lack of acceptance by the authorities and the municipalities let alone the community as a population. One of the major risks was that by changing the operational processes to dealing with the work, there could be a lack of compliance which might lead to causing a process failure. This was identified as something that had to be delivered from the first day to ensure a baseline of understanding had been established. In addition, if the project team did not communicate the message well enough to both internal and external stakeholders, the lack of transparency of the changes would lead to a failure to gain authority buy-in leading to rejection even at the later stages of the projects. This would mean that the Eastern Province would have to consider communicating to a much wider audience than ever considered before. In addition, the project team soon became aware of the region's lack of strategic expertise that existed; this could potentially cause coordination inconsistencies therefore, the need for the right people running the Strategic PCP Centre once it was opened became clear very quickly.

Due to the fact this risk was identified early, it was decided that the key posts within the PCP Centre were to be filled by international staff and it would be their responsibility to start the training programme to identify and coach their Saudi replacements. Something far simpler and well within the project team's control was that by having a change in processes and policies, this could cause confusion amongst the staff, the contractors and the organisations and authorities so greater clarity once again would be the main aim of the project. Finally, we had one last project risk that we knew of that we didn't truly understand until the project had initiated. Everything that we produced as a team, had to be translated into Arabic, but as we soon learned, as the documentation was being generated, having the right person with the right knowledge on the subject matter and the ability to contextualise the words is a rare and exclusive skill, meaning it was going to be very hard to find someone to fill this position, as unlike many languages, Arabic does not have a direct or literal translation to English.

Convincing ourselves had been an achievement, however telling others how and why the PCP should exist was a further challenge. We should prove we could set a standard and that it would make a difference.

All our ideas were fine and knowing our own competence was one thing, but to understand a different culture and their approach to the work that had to be done was a different challenge. The Eastern Province had its own standards in many areas and this gave us an idea of what the standards had to fit with when it came to each of the deliverables and procedures and processes.

**Eastern Province Projects Governance and Compliance:**

Assurance of the compliance with the Quality, ISO, Accessibility, Mobility, Sustainability, Safety, Smart-Cities, for all criteria of all projects and initiatives undertaken by the Eastern Province Municipality.

**Eastern Province Programme and Portfolio Management Office:**

Assessment, planning, control, coordination and reporting of the different programmes, projects and initiatives undertaken by the Eastern Province Municipality.

**Eastern Province Projects Coordination and Planning:**



Coordination, planning and execution with all internal and external authorities of all the works required by the projects and initiatives undertaken by the Eastern Province Municipality.

There was a clear show of rules and regulations that needed to be abided by and plenty of authorities and organisational bodies ready to watch each step of the project.

So, with everyone now on board, (in certain cases as well as we could) we now needed to improve the delivery by making it meet the key requirement of a sustainable solution for the next fifty years. So what exactly is being City SMART?



The City SMART approach was based on the original model created by Mark Reeson for the enhancement of learning through action rather than theory which he created to improve project competence based around a student or delegates competence rather than simply

knowledge by introducing Action Based Learning. With this model it was further adapted to create a version for Business Management, Event Management and Supply Chain Management formulating his own SMART family.

As a new challenge however, asking this to be fully uplifted to take on board the working of a city, it required the assistance of the Fanar Consulting team and their views on increased personal mobility and greater information accessibility to truly bring the model to life and create a new inspirational model for the future.

This next section of the document will explain the enhancements that were included to make the whole operation for the Eastern Province fully sustainable for a future whereby the change would have the greatest impact possible.

#### **Increased Mobility:**

The first aspect of the three elements to create the true change within Dammam and the Eastern Province was increased mobility. What was recognised early as the solution to this project, was that it is important to understand the essential need for people to gain access to the right goods, services and social and economic connections. By introducing this change it was important to recognise the growing global population with an increasing affluence and the urban sprawl occurring in the region. Aligning that with the ever declining transport costs was pushing the demand for mobility upwards. People in Saudi Arabia now clearly want to travel, they want to move. The challenge is getting



them to move to this region instead of the previously more popular destinations such as Riyadh, Madinah, Makkah or Jeddah. This was what the Governor had planned however, with growth comes greater environmental, economic and public health challenges. These would also have to also be addressed. Add the fact that transport is an energy intensive resource which is responsible for sizeable proportion of greenhouse gases, whilst congestion also holds back economic productivity, clearly getting the balance right was clearly going to be a real challenge. This would mean a new programme to be launched again in the near future for an improved road and rail system. However, the balance which could also work in our favour was that with greater mobility, it would improve the region by making it rich in innovation, intelligence and this could then help develop the newly planned integrated citywide systems and so becoming more City SMART.

#### **Greater Accessibility:**

The next element that had to be addressed was the theme of greater accessibility. Information management and accessibility to it has changed due to the increased connectivity available these



days through so many devices. Technology has created an emphasis on lifelong learning meaning therefore that there is a greater demand for information reception. What this is creating in the region is a rapidly changing world who want to attain or develop new skillsets in their lives. This therefore placed a greater demand on the infrastructure provision. There are over 53 million users of WhatsApp in the Kingdom as this is the most popular form of communication and as Saudi Arabia becomes more IT aware, they have grown with their social media usage becoming the 14<sup>th</sup> largest in the world in only a few years. With this new information surge this increases their opportunities to move between professions such as engineering, law, academia and business far easier. The people of the Eastern Province are now taking greater responsibility for their own learning and information gathering which therefore leads to the municipality having to put greater investment into informational needs and the modes of delivery to improve social and economic mobility. Put simply, the greater the population, the greater the demand on the informational sources and without improved facilitation the population will not be attracted and neither will the business or financial investment.

#### **Future Facing Sustainability:**

The last aspect of the Governor's vision was to ensure that we didn't make a change for now but



for the next fifty years, so anything we did related to the project delivery must have within it, a Future Facing Sustainability Model. The first area of concern was that we had to ensure that the supplies of water, energy and food for all by managing the synergies and trade-offs of all that we had previously discussed. We had to create a clear context of environmental, economic, social and technical, legal and political changes plus, look into the right direction to decarbonise social and economic systems whilst stabilising the climate by promoting behavioural changes in the

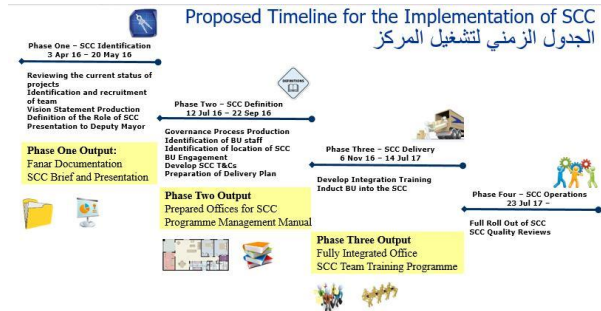
region. The message had to be sent out, "Sustainability is not about being green, it is about having greater awareness".

We had a remit whereby we had to safeguard terrestrial, freshwater and marine assets that underpin human well-being and improve the quality of life. To do this, we would have to undertake an exercise to understand the relationships between biodiversity and their related ecosystems. The aim was to get the most out of the region and what it could offer and not to sacrifice the land as a result of growth, creating a harmonious relationship between the population and the land. The long term plan was to build a healthy, resilient and productive city by identifying and shaping innovations for a better urban environment with more efficient services and infrastructures. In doing this we will be promoting a sustainable rural future which adapts to the increasing demand on food production, with an affluent population by investigating in alternative land uses, food systems and ecosystem options. Questions needed to be answered with the changing and growing population, such as what food was needed, where it would come from and how it could be brought into the city in the safest and most efficient way. One challenge that would always remain was the location of the Eastern Province and its closeness to Riyadh. However, this was seen as an opportunity to draw from Riyadh and to reverse the trend of people leaving for the capital city.

The true goal for the Eastern Province which would open the world's eyes to how Saudi Arabia is viewed was to improve human health by clarifying and developing solutions to the complex interactions among environmental change, pollution, disease and social well-being. This would lead to educational steps to encourage sustainable consumption and production equitable to the changing social and environmental impacts of consumption, which would in turn be monitored and controlled by increasing the social resilience to any future threats by building adaptive



governance systems and developing early warning systems for preventative actions against future issues or risks. This would therefore limit the waste being produced by the region and the waste produced would be more efficiently and safely disposed. The City SMART Model's fifth element allowed for the recognition of the need to change which meant that all plans stayed



‘live’ which would deliver the city for tomorrow but also for the next fifty years. Understanding the Saudi culture was key to the delivery and approach of the project implementation. This was not a delivery that could be delivered with a big bang. To create this delivery in a full, detailed and controlled manner it was decided to separate the whole thing into four phases and then also into three main work streams. The work streams would all be

named after aspects that would have a deliverable with them, the PMO Project, the SCC Project and then a third that had become very apparent called the OLA or Operational Level Agreement Project. Having the team separating up the work and then delivering it in phases came under many challenges for our approach and style but once the lead for the project had been established then the project's momentum grew and the delivery became more rapid in its approach. This project has now reached its final stages of the full delivery and at the time of writing the offices are now in place and ready to be filled for full roll out. With the new roll out ready to bring in the benefits and the vision that this project has planned, after many challenges this has finally been delivered as a real success.

So, with everything in place and with the team prepared for implementation, would it be accepted truly in Saudi Arabia? The biggest push was about to happen. On 16<sup>th</sup> May 2017, there was a meeting in Riyadh where the senior management officials from the big five municipalities held a strategic discussion about the formal role out of Coordination Centres in the full Kingdom. The big five cities that make all strategic decisions on behalf of the kingdom are Riyadh, Makkah, Jeddah, Madinah and Eastern Region (Dammam).



The main purpose of the meeting was to establish the next step which is aiming at the coordination all efforts and to assure same standards and understanding throughout the five cities. This would then arrange the future for project management delivery in the Kingdom for the structure, roles,

responsibilities and authorities of all Coordination Centre departments. It was recognised that not all municipalities are at the same level of organisation maturity and understanding of the purpose of the Coordination Centre. This would be seen as a huge step towards the introduction of the Saudi Vision 2030 programme. The decision was made that the City Smart approach was the ideal model to follow and so the Kingdom's approach in the short and medium term would be to support each municipality working with the Ministry of Finance for assigning the required budget, based on the priorities of urban development of cities not based on the services sector requests.

The initial thought towards a further roll out was decided in Riyadh at the next MOMRA meeting, with a provisional plan. The roll out for the national work would be:

- The big 5 cities in one year 1438H (2018)
- The next 80 cities in the next 3 years between 2019 - 2021
- The remaining 135 cities between 2022 - 2029
- By the end of 2016 they would formalise all municipality urban development plans for their cities to assign the 1438H (2017/2018) budget



The Makkah officials suggested to outsource the work to the PCP Centre specialists so they could then focus the Kingdom's investment into services provision. The PCP Centres for a future facing sustainable approach will include

- Development of a Coordination Centre in all municipalities
- All municipalities are to be developed to align with the Smart City Modelling Concept
- Priorities of urban development through a good knowledge and active software
- Lessons Learned and Knowledge Management throughout the big five municipalities
- The governance of the Kingdom of Saudi Arabia will fully support this direction and will provide facilities to transfer the current situation to the new approach for the future

So, with everything in place to deliver, the only question that is left to answer, is how exactly does the City SMART Model work? This was a eureka moment in January 2017 when the Municipality were explaining how they wanted to deliver projects when Mark Reeson left the room and promised to be back in two hours. Two hours later, he returned and the initial SMART Vision was drafted and the picture for the future was clearer.

The first thing to remember with all work, is that everything starts at the top. The SMART Vision process begins under the authorisation of the Ministry when they issue their own five-year plan that covers four specific disciplines:

- Storms and Drainage projects
- Asphalt projects
- Human well-being projects
- Building projects



These four disciplines make up the Urban Development Plan that covers a specific region for a five-year period stating what will be built in which districts and when, therefore prioritising the development of specific areas that it feels are of a greater priority than others. This first step in issuing the five-year plan to the Municipality starts the Eastern Province's own processes which have been the SMART Vision 2017, to support the development of the 2030 Vision that promoted the idea of greater uses of

PMOs to support future project delivery as stated in 2016 by the Deputy Crown Prince Mohammad bin Salman.

Next, to support the Province or city's new approach to the SMART Vision, there are several Strategic documents that have been created to ensure that there is a clear structure and governance behind all the work that it produces. The four key documents that make up the governance structure for the Municipality are:

- Strategic Statements
- Governance Manual
- Communications Plan
- Implementation Plan

These four documents form the structure by which the automated Project and Programme Management (PPM) system is to be managed and describes within them the metrics necessary for managing the Province or city's deliverables. This automated system then comes under the authorisation and the direction of incumbent of the position of Head of the Project Coordination and Planning Centre (PCP). This role then authorises the internal and external stakeholders the correct access to the Ministry's Urban Development Plan to offer greatest visibility to all the activities and districts that the Ministry has determined as the most important now. By allowing





access to this information the internal and external stakeholders can plan their own activities in line with the Ministry's own priorities.

It is at this point in the process that the internal and external stakeholders have different responsibilities and processes to ensure that the SMART Vision works successfully. As the external stakeholders are private organisations this must be recognised from the beginning of the business process, as they will have their own priorities and shareholders' direction. Therefore, to ensure that the SMART Vision is a success to all involved this early recognition means that the Ministry Authorisation of the four key areas of the Urban Development Plan needs to be shared with them, however as a guidance for their support and not as a directive. As the external stakeholders are there to support the Province or city's new approach, equally the Municipality reciprocates this support to the external stakeholders. Where internally, the Municipality provided the documentation for the stakeholders to give direction, here the external stakeholders will not have access, nor need access to the documents as they will self-direct.

If an understanding is in place between the Municipality and the external stakeholders as to which areas are being developed, when and how, then if communication is kept open between the two parties then the SMART Vision approach will be successful. Giving the external stakeholders visibility to the Urban Development Plan is paramount to success, however this does not necessarily mean access to the Automated PPM System and so what accessibility is granted and to whom and when should be a decision that is made by the incumbent of the position of Head of the Project Coordination and Planning Centre (PCP).

The Municipality's authorities make up the internal stakeholders that will deliver projects within the Province or city. Now each of these authorities has visibility of the Ministry's five-year plan it should work with the PCP to align its priorities with those stated by the Ministry. The internal stakeholders would work with the Strategic Planning Coordinator to develop their plans and the relevant alignment with activities and districts. Once these plans have been verified by the Head of PCP, working on behalf of the Mayor of the Province or city, the internal stakeholders will be allowed to continue delivering their own projects under their own supervision and control. However, to assist and support the efficient delivery of the projects, the PCP Department provides the services of the PMO.

This PMO has been designed to record and monitor all the internal stakeholder projects across the Province or city and to provide a full suite of project documentation to help with the delivery of every project. By working together, the internal stakeholders and the PMO can track the start of each project and the performance of each project to ensure that it stays in line with the greater plan for the whole province. The PMO itself is supported by its own suite of documentation that it will use to enhance the project and programme management achievements for the Municipality. This suite of documents includes:

- Project Prioritisation Guidelines
- Project Management Manual
- Project Evaluation Report
- Programme Objectives Report

Further to the support offered by the PMO, the final section of the PCP Department, is the Quality and Compliance team. The role of this team is to ensure that only the relevant projects, in the correct region and at the right time are issued work permits and that once the work has been carried out that it ensures it has met the specific requirements needed to fulfil the obligation of the project activities. In addition to the applications for work permits, the Quality and Compliance team will be assessing the internal stakeholders' assessments against the sustainability criteria required and set by the Head of the PCP under the direction of the Mayor of the Province or city. Each internal stakeholder will be given access to the SMART model to



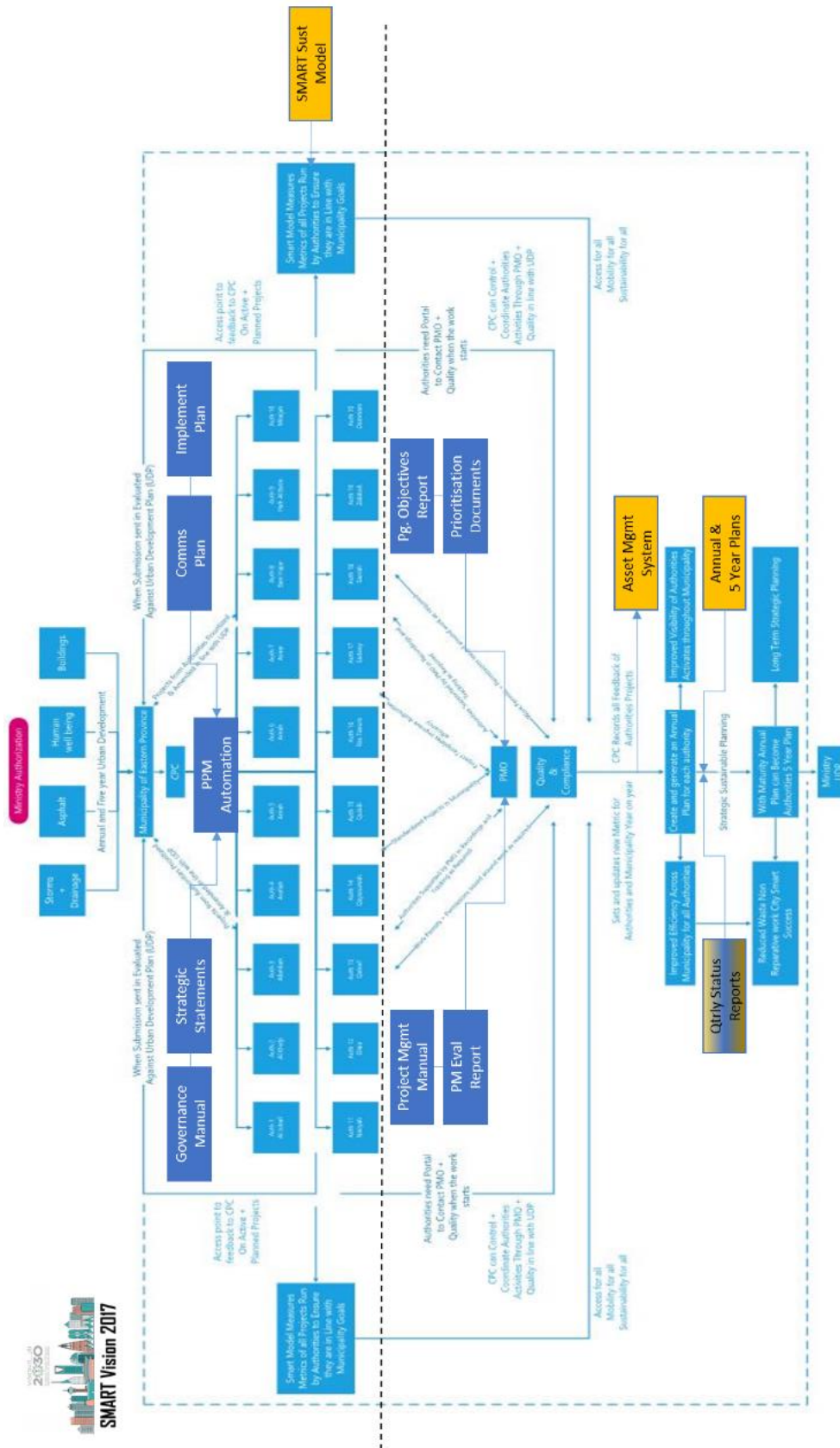
assess their project activities so that the results can be recorded and then checked against the sustainability priorities of the Municipality. The SMART model measures six distinct areas:

- Business Organisation
- Business Development
- Business Finance
- Business Governance
- Supply Chain
- Environmental Sustainability

These six areas are based around the governance of the Municipality's projects through the PCP which has three main aims:

- Greater Accessibility for all
- Increased Mobility for all
- Future Facing Sustainability for all

Each internal stakeholder will submit their assessment to the Quality and Compliance team. The private and commercial companies that deliver projects on behalf of the Municipality within the Province or city make up the category that are determined as external stakeholders. As the Municipality has no direct authority over these organisations, the relationship between the two parties is much more fluid but still must have a structure. The external stakeholders will still be given access to the automated PPM system but with limited usage so that it has visibility of the Ministry's five-year plan to allow it to align its own plans with the Ministry's directive. To gain support in this area the external stakeholder can discuss and share its planned activities with the Strategic Planning Coordinator to ensure there is a clear understanding between the Municipality and the external stakeholder as to what work is going to be carried out when to achieve the planned goals.





For the external stakeholders, the role of the Quality and Compliance team is very like that of the internal stakeholder but not through solely an authoritarian approach but also as a supportive and detached approach. The role of this team is to ensure that only the relevant projects, in the correct region and at the right time are issued work permits. However, it will require to ensure that a sub process and agreement exists between the external stakeholder and the team once the work has been carried out so that a suitable inspection can be completed to confirm the delivery has met the specific requirements of the project's activities. In addition to the applications for work permits, the Quality and Compliance team will grant access to the front end of the SMART Model so that it can perform its own initial assessment of the work being carried out so that this can then be measured before, during and after the project. When the submission for the work permit is issued by the external stakeholder this sustainability assessment will also be used to validate the work against the sustainability criteria required and set by the Head of the PCP under the direction of the Mayor of the Province or city. If an external stakeholder wishes to have full access to the complete tool so that they can carry out sustainability assessments on their own processes and functions as well as those whilst working with the Municipality then this permission will need to be granted by the suitable authority.

This creates a fundamental planning and control approach, however still does not fulfil the sustainable strategic planning that we need for the future. Now both the internal and external stakeholders are delivering their appropriate projects, the strategic planning and coordination for this, next and future years can begin. By collecting the data generated by the Quality and Compliance team and the performance information of the PMO, the Strategic Planning and Coordination team can start to set the new targets and update the metrics being achieved year on year and for the future. This team will also be ensuring that that the Ministry's priorities are all being recorded against the feedback reports to update, maintain and create the necessary records within the Asset Management System that will be aligned with the Automated PPM System. With the constant updating of the asset register this will give greater visibility to the Head of the PCP and the Mayor of the Province or city of what districts are growing, which areas are developing and how their province is responding to these changes. Now this information is available, it can be used to improve the optimisation of time and resources further by developing both the internal stakeholders and supporting the external stakeholders with their long term strategic sustainable planning.

With the continuance of information flowing now into the PCP from the internal stakeholders' projects, this data can then be used to create and maintain the plans that have been produced up to this time. With this information being channelled through the PCP this will offer greater visibility of the internal stakeholders' activities and achievements and with the support of the PMO and its documentation, an improved efficiency in the way the internal stakeholders implement their projects. With the use of the PMO's quarterly Status Reports, the PCP and specifically the Strategic Coordination and Planning team can use this information to start to develop a more strategic way of thinking about all internal stakeholder projects for the future. Feeding this information between the internal stakeholders and the Head of the PCP will reduce the waste that can be exhibited on projects and eliminate the repetitive natures that some projects have had in different districts over the years.

As the PCP and the project management approach matures, so the strength of a resource and realistic five-year plan for each internal stakeholder will become possible. Once the five-year plans have been developed these will align with and feedback into the primary document from where the process began, the Ministry's Urban Development Plan. With the feedback of information from the reports generated by the external stakeholders' projects, the visibility of what has been achieved will become transparent and will help to forge the relationships between the Municipality and the external stakeholders. As the data becomes readily available through the Automated PPM and the Asset Management Systems, this will mean that the PCP can offer its support to the external stakeholders as required to assist them with the development of their own annual and five-year plans.



By having the external stakeholders embracing this approach and understanding a thorough process means help and support not command and control it is hoped that this will develop the relationship further so that all the long-term planning made by the Municipality and its external stakeholders can be combined to develop a master schedule of activities in years to come. With the SMART Vision 2017 in place the Municipality will have the opportunity to finally highlight the importance of creating strategic plans with clear, measurable goals and outcomes. This approach will allow for the creation over time of mid-range and long term goals and outcomes being identified with obvious beginning and end points, whilst the projects and tasks required will describe how the work will be conducted. Having this structure in place will allow the management team and the decision makers to calculate and allocate the correct human and capital resources to take the necessary actions. This decision-making ability can position the Municipality on a course to accomplish future goals or outcomes. Reviewing and re-assessing of the strategic vision will also give early indication to resource constraints which may indicate that a goal or objective must be satisfied before proceeding to a new goal, or that certain goals or objectives are unnecessary, inappropriate, or unattainable. By having the flexibility within the long-term and sustainable strategy will allow the senior officials of the Municipality to avoid a linear goal-driven mind set but instead can plan with greater confidence and practicality to create substantive and productive change to the region.

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Saudi Vision 2030.

However, changing a city and how it functions is one challenge, but what about the communities that live within it?

In a world where technology is all around us and we continue to be challenged to save more time and money through the immediacy of automation, there is a huge danger of forgetting a key factor behind any change, it involves people.

Having worked with many ‘Smart Specialists’ and invested my time to contrast the approaches being taken through some of the latest Smart Cities, it is becoming more apparent that the ‘Internet of Things’ which has gradually become the ‘Internet of Everything’ has a potential to make a Smart City, a faceless city, or rather a faceless community. A city and its identity is based on what it looks like and what it does, but mostly on its cultural and social values. Therefore, a truly Smart City must start and end, with its own Smart Community.

However, before we all start to consider throwing out all the technology, it is important to recognise that the community that we have will need to be supported and at certain times, directed by the technology. The key word to all this success is balance, so that the technology we use add value to “The City and its Community” in a way that it is FOR ALL and that it does not leave behind some members of our valued and unique society that has been built up of centuries.



**So, what exactly is a Smart Community and what does it mean to become Community SMART?**

Starting quite simply, people are impacted by their living or working environment, whether a city, an



organisation or a province or region. The impact can be evaluated using six key factors, each one as equally important individually, but when combined, creating a powerful sense of well-being and integrated inclusion FOR ALL.

The six factors that have to be identified and then evaluated in each city or community are as follows:

- ❖ Safety
- ❖ Efficiency
- ❖ Livability
- ❖ Health
- ❖ Prosperity
- ❖ Sustainability

These six factors are generally referenced by organisations or authorised bodies as Social Responsibilities, whether these are personal or corporate. Corporate Social Responsibility (CSR) is that undertaken by a business approach so that it contributes to a sustainable development by delivering economic, social and environmental benefits for all internal and external stakeholders from its plans and its actions. However, CSR is a concept with many definitions and practices all wrapped up inside.

One of these key practices, is that of Social Responsibility, which is an idea that businesses, governments or people of authority should balance the profit-making activities with sociological beneficial activities which involve developing businesses and organisational bodies with a positive relationship to the society in which they operate.

One of the biggest drivers towards CSR and to making a difference to the world and to our communities was the release in January 2016 of the United Nations Development Goals when they issued seventeen Sustainable Development Goals (SDGs) to meet the 2030 Agenda for Sustainable Development. With the plan in place, the intention of the UN is that over the coming fifteen years, these new goals would be applied universally to all, with countries mobilising efforts to end all forms of poverty, to fight inequality and to also tackle climate change ensuring that no single body of people are left behind.

It was whilst reviewing the SDGs in the Autumn of 2017, that it became apparent that the UN strategy is in many ways aligned with the SMART Sustainability Modelling programme which has identified a FOR ALL strategy. This alignment led the team to then identify how the Smart City approach is also integrated and so the City SMART initiative that was started by M R Project Solutions Ltd in the Kingdom of Saudi Arabia, was further adapted to include the UN's vision with the SMART Vision 2017 and the SMART Model to enhance its value and to finally develop the Community SMART Concept.



The goals of the concept are that each community is unique and so that it calls FOR ALL communities, whether their members are rich, poor or somewhere in between, to promote prosperity whilst also protecting and investing in their own surroundings. With the recognition that ending poverty cannot be achieved without a strategy to build economic growth within their own community this would also lead to further social needs being addressed that are specific to the community at large.

Much as the SDGs cannot be made legally binding, the communities and the authorities within them are expected to take ownership of their own areas of responsibility and to then, once a platform of success has been established, create a network to combine regional and then national frameworks of values and commitments. However, without an approach to measure this progress, the idea of the SDGs or a Community SMART programme would be idyllic but essentially toothless, which is why the team created and continue today to develop further the SMART Metrics, which become specific for each and every community that undertakes the programme.





**So, with this concept now firmly established, how does the Community SMART programme begin and how do you start to develop a new approach with a benefit FOR ALL to make a change for the better in the future?**

Let us begin with the first of the six factors, Safety.

### **Safety – Creating a Safe Community**



A safe community, is a “Happy Community”. That sounds simple but is very true. However, creating an environment where people can flourish needs time and commitment BY ALL. Firstly, there is a need to identify threats before they can happen and to proactively promote and implement the aversion of danger. One of the best ways for the community to act SMART is through the sharing of information, which requires an open and liberal information flow, without any restrictions and across the different jurisdictions, collating

findings with regard to research, development, science and technology, leading to an improvement of the authorities and the communities’ situational awareness. With this simple step this can initiate the aim to safeguard lives and to protect the property across the whole community and FOR ALL.

The key aspect of having a safe community, as mentioned earlier, is an increased situational awareness. Communities need to be able to improve the perception of the environmental elements and the events occurring within that environment with respect to the time or the space in which they are in. Being able to ascertain a comprehension of the meaning of this information and then project this status when one or more of the variables change such as time or an event, is key to the safety of the people within the community.

Situational awareness, is a result of four key elements being brought together and then assessed, simultaneously to draw a picture of perception in the mind of the viewer.

These four elements are:

- ❖ Situational Understanding – Applying analysis and judgement to the current situation
- ❖ Situational Assessment – Achieving, acquiring and/or maintaining your current awareness
- ❖ Mental Models – A set of well defined, highly organised yet dynamic knowledge structures developed over time with personal experience
- ❖ Sense Making – A motivated and continuous effort to understand the connections between people’s behaviours, certain locations or places and any relevant events or occurrences

### **Efficiency – Planning the Improvements**



The aim to efficiency planning for a community is to “Maximise the Efficiency of Events” such as housing or transport development and redevelopment. To achieve this, the parties delivering these events need to define a process of communication between the developments through open and transparent platforms. By informing the community of such developments, allows them to make decisions which

can help them to plan how to avoid the congested or under construction areas. In addition, this would allow local utilities to optimise opportunities to inspect any underground assets whilst they are exposed limiting the ground breaking disruptions to a minimum.

Well run communities have authorities or government departments information hubs which can collect, collate and distribute insightful information to the necessary bodies so that a rapid response to a situation can be carried out or observed. By having this centralised location of data and information generation, it makes it clearer FOR ALL how certain actions could then impact





all the community. To assist further with this, as long as the information passed meets regulatory constraints or acceptability, this can then be used through public and private partnerships to allow the community to flourish.

Furthermore, this can help organisations within the community to address issues, provide a higher quality service and ensure that the community's essential services remain well run despite the changes or any potential adversity within the region. Efficiency however, relies on greater connectivity, supporting the argument earlier that **“technology can and does have a key part to play to support the people within your community”**.

As a community then starts to develop and grow, this develops an increased probability on mobility and a greater need by those moving for an accessibility to information.

Herein, lays a possible risk to your community. With the continued growth of your community through its greater efficiency, comes a greater investment requirement for informational needs and for different modes of delivery to improve both social and economic mobility. After all, as the community grows and looks to create greater revenue and investment for its area, it is imperative that the infrastructure of communication and accommodation meets this demand. Having a successful and affluent community, brings with it environmental, economic and public health challenges but finding the right balance with this against the enhancement of the area to create one rich in innovation and intelligence creates community wide integrated systems and the first signs of becoming Community SMART.

#### **Livability – Your Quality of Life Matters**



“Communities Thrive when they are Proactive”. Having this foresight and positive attitude means that the feeling within is one which is looking to stay ahead of any problems and that when they seek to resolve a problem, they look at long term, sustainable solutions and not the simplest or quickest fixes.

With this approach and with a strong view towards longevity, the area thrives through the avoidance or the restrictions that can come through infrastructure fatigue. Changes are made when they are needed to be made and are always made after a thorough evaluation and a clear understanding of the added value this change will bring to the community. For example, if the age of the population in the community rises and the demand for more homes with assistance is identified, then the changes to the community's priorities need to be addressed. Equally, if the average age of the population starts to move towards the millennials, then a change in entertainment or virtual cloud based needs may be required.

The attitude is a strong positive one which says yes to change, but only when it is the right change and at the right time for the community.

This strength comes from the longevity view that it takes and through its approach to creating the previously mentioned sustainable solutions. A community's livability is about so much more than the way it looks. Livable communities have to wrestle with the multiple priorities placed upon them, to reduce congestion, to safely manage water and waste and to continue to create the right infrastructure for a continuous and sustained success.

The community's ability to proactively assess where the relevant infrastructure repairs are necessary and how to balance these against other opportunities to improve the living conditions FOR ALL, where no one is constrained or unfairly treated because of their race, religion, colour or creed is a battle that is fought on a daily basis to create such a harmonious environment.

**“The community and the people within it are always viewing long term solutions and not the short term gains”** and this strategy creates a Smart Community which is stable and where everyone associated with it, feels valued.



By having the community support itself by helping with the approach to change is the best way of problem solving with structure by integrating local experience with external expertise to assist in managing the requirements and the needs of infrastructure for the community at large. This vibrant and transparent environment opens up information to more people helping to expose or reveal critical issues and promote livability in a more timely and cost effective manner.

### **Health – Bringing Renewed Life into the Community**



Community health touches on many different services, departments and non-profit organisations, by interacting for the benefit of the community. Each of these departments have to “Learn to work together with the Community’s Support to generate justified decisions during planning and at times of emergency or crisis”.

Whether they are responding to an outbreak of a disease or safeguarding against the threat of a future one, this approach and their ability to collaborate is essential to any success to

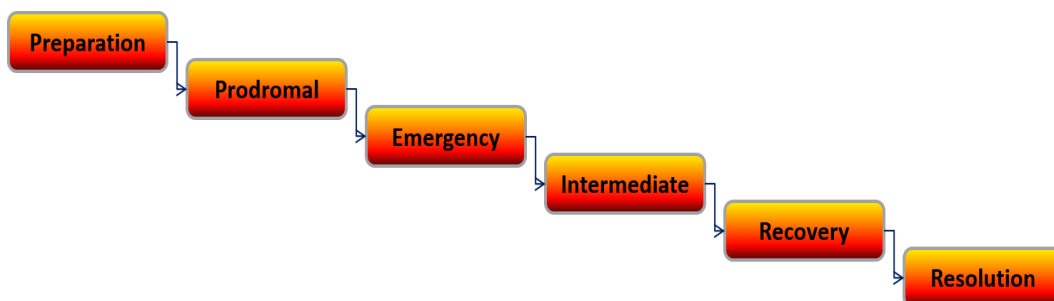
repel the risk to the health of the community.

**“By being able to work together to predict future illnesses before the community become sick, by finding transmission patterns by visualising real-time and historical threat data, these departments remain on the front-line to keep the community healthy, happy and enables a future of safe and stable growth”.**

By developing these shared insights across and central platform, this ensures that multiple audiences can stay readily informed and instantly prepared to fulfil their routine and emergency roles as needed. The community authorities can then reinforce this approach by establishing protocols at certain key moments or events so that should certain conditions occur or situations arise, there is clear direction by those that are viewed to give the community guidance. This builds confidence not only in the government authority but in the community as well, knowing that if the worst does happen, someone is there to provide help, support and guidance.

One such approach that has been used and published previously, is from the document “Project Management in the Danger Zone” which explains the six steps of the Faulkner Disaster Lifecycle from the preparation and pre-disaster stages, through the event and then helping the community rebuild post disaster. This structural approach is already being reviewed in certain parts of the Middle East being utilised against flooding and wind disaster.

Having such a formal approach leads to the government body within the community being able to trust its emergency planning techniques, testing them regularly and visibly to the community public, demonstrating proficiency and competence.



### **Prosperity – Investing in the Community**



“Communities prosper when they work together, supporting each other to identify market trends that can attract investments”. Whether they are appealing to potential residents or businesses, economic development planners help



communities grow, by emphasising the importance of the right investment in the right location to maximise its worth.

In competitive environments where neighbouring communities or cities vie for capital improvement funding, tourism and much needed revenue, the economic planners must demonstrate the potential for a clear and substantial value of a new development site and commercial property. To be truly successful, they must demonstrate to the community, government bodies and local commerce sufficient relevant and accurate data to entice its citizens through insight into the changes that such an investment can make to their lifestyle and demographic characteristics.

To better prepare a community for prosperity, identifying and connecting the right investors and entrepreneurs to the right information so that they have time to recognise and implement such investment opportunities. By having the right people understanding the changes to the needs and demands of the community, this can encourage those willing to invest by offering this information to obtain greater visibility of the opportunity being offered. This will then avoid chance, or blind investment into the community based on hope rather than fact leading to regular foreclosures and reduction in the attraction of the community's home. This regular turnover of business can create disharmony and start to affect house prices and the popularity for mobility into the area, instead in some cases, causing a prolonged exodus.

**“Community prosperity means FOR ALL and not just for the few, creating an environment of growth that does not discriminate against individuals, therefore reducing or in some cases eliminating poverty within the community”.**

This however can only be achieved with Financial Sustainability Planning. The planning needs to be viewed both on a long-term and a short-term basis. The community needs to know their finances for six months to a year, but then to challenge itself to plan where it will also like to be in five years.

Financial sustainability planning is only one part of the overall plan, allowing the community to concentrate on their real purpose and to focus on its achievements. The community should never lose focus on why it is there and what it stands for, it should never lose its traditions or its identity. Of course it is important to take care of the finances, after all, as I was told in January 2017 at a sustainability event in New York, “You can't do anything with empty pockets”, but never forget what you are trying to achieve as a community and for the community.

#### **Sustainability – Building a Community for Future Generations**



To maximise sustainability, communities must connect with their government bodies to work together to fight deforestation, uphold the community values and health and to preserve the living standards FOR ALL.

When it comes to the urban planners and designers, they should use technology to balance competing interests, to fuse data from numerous sources and to communicate their intentions for the community across multiple audiences.

However, one thing is as true today as it always has been, “If you want to pass a message to others, understand your audience”. Too much technology can be equally as bad as not enough, so know who you are sending what message to with what media.

Those sharing the messages should be able to acknowledge their own personal style of communication and then understand how that impacts the recipients (benefits/risks, why that kind of change is necessary now, what are the consequences in the future if the change will not be implemented etc.).

**“Only when the sender can actively listen through effective feedback can they then adapt the style or media of the communication so that it becomes appropriate to the situation and to the needs of their audience”.**



By incorporating a strong geo-design into any planning, communities become better positioned to provide their citizens a more sustainable future without compromising the usage or the quality of its land, water or air.



One such approach that has been heavily invested into the Middle East, is the CitySMART™ model designed by M R Project Solutions Ltd. When presented last August at

the UT Dallas Symposium, one of the fellow keynote speakers described it.

“CitySMART is a model that has been designed and created to improve the performance of work based competency which covers projects, businesses, supply chain management, event management and media management to enhance how a city performs and how it can achieve more for less within the Eastern Province Municipality of the Kingdom of Saudi Arabia.”

With the use of the Smart Modelling Concept, communities have the opportunity to benchmark their achievements and to then measure progress as they implement change. It can clearly assist each community with the recognition of its successes and identify where further improvements need to be made.



By utilising the Smart Metrics approach to change they can measure and then mature their approach in the six separate areas of community sustainability focusing on what matters to the community, when it matters.

The six areas of measurement are:

- ❖ Community Organisation Sustainability
- ❖ Community Development Sustainability
- ❖ Community Financial Sustainability
- ❖ Community Governance Sustainability
- ❖ Community Supply Chain Sustainability
- ❖ Community Environmental Sustainability

Through the metrics matrix of 242 assessment points, each community can grow and shape itself into the community it wants to be using the maturity model previously published within the PMWJ.



### **So where would a community start and how simple is the model to integrate into their lives?**

After you have obtained the model and its relevant supporting documentation, the community has to establish where it currently is and create firstly its baseline but then, set its goals for achievement. As the community drafts its original Strategic Smart Plan, it will begin to identify the approach it wants to take and how it chooses to optimise efficiency and to minimise its waste. No-one comes in and tells you what your community should be doing and there are no methodologies, just a simple framework, governed by you, implemented by you and delivering your needs.

**“The secret behind a community, lays within the community and its people”.**



By bringing people together the community and by understanding what they want to do for their city, town, village or business this increases buy-in and the potential for further investment for the future generations.

After all the technology is taken away, after all the measurements have been taken and progress recorded, the citizens of the community, will do what the citizens have always done best, they remember to Think SMART.

In closing, there is a simple and straight forward message for those that pursue the Smart future with Smart Cities and Smart technologies. Remember, a city or a simple community can be SMART without hi-tech instruments and an endless and seamless connectivity. These are tools to support the city, not to become the city.



A city or any form of community is made up of individuals who live there, those that visit and the way that they work together, for the greater good. It is the people that are impacted by their own living environment and so it is those people that should identify and drive the change making them feel

individually responsible and committed to their community. Whether the end goal is increased safety, greater efficiency, a higher quality of livability, stronger health, greater prosperity or finally a fresher and cleaner environment, being truly SMART as a community is about those that live there.



***Think SMART, Act SMART, Live SMART***



## A DEEPER INSIGHT INTO THE HUMAN FACTOR IN PROJECT RISK MANAGEMENT

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### **Abstract**

A fundamental understanding of risk, risk attitudes, risk ethics etc. is the basis of each risk management approach – not only in project management. Risk management requires human judgement, and this is often influenced and distorted by individual perceptions. After presenting the historic development of the human perception of risk and the individual psychological attempts to handle this matter, we try to work out necessary consequences to project risk management.

This paper can be seen as a continuation of a contribution to a former conference of the same format here in Riga (Tysiak (2013)).

**Key words:** *project management, risk management, cognitive bias, simulation*

**JEL codes:** D91, O22, C63

### **Introduction and Background**

In every project there is the need to implement some kind of risk management (cf. PMI (2013), Kerzner (2009), Schelle/Ottmann/Pfeiffer (2006)), which normally contains the following phases:

- (1) risk management planning,
- (2) risk identification,
- (3) qualitative risk analysis,
- (4) quantitative risk analysis,
- (5) risk response planning, and
- (6) risk monitoring and control.

Since this approach is more or less similar in a lot of disciplines that apply risk management (like financial engineering, software development, supply chain management etc.), let us first broaden our view and look at risk management in general and not only related to projects.

The tasks (2) to (6) have to be seen as a chain/loop that you permanently have to work through simultaneously. But, as always, a chain is as weak as the weakest link: If you are not able to identify the crucial risks, there is nothing to analyze. If you are not able to evaluate the risks and therefore cannot plan how to respond in an adequate way, you cannot handle the risks.

Especially while applying the tasks (2) to (4), we have to be aware that they are of course performed by human beings and therefore by people with different attitudes in risk acceptance, risk handling, risk culture etc. The term “risk” in this context is a little misleading: In everyday language this term is associated with a negative outcome of an uncertain event, whereas a positive outcome is normally denoted by “chance” or “opportunity”. In risk management the term “risk” is used as a synonym of “uncertainty” (cf. the definitions in PMI (2013), Schelle/Ottmann/Pfeiffer (2006)) and therefore covers positive and negative aspects. Following, we will identify possible reasons for the disparities in human behavior in the context of uncertainty handling and thus try to provide support to manage it.

We want to start with a short reflection about the historic development of the cultural relation to uncertainty and then look at the individual way how human beings estimate probabilities. The first part is mainly based on the interesting book by Peter L. Bernstein



“Against the Gods” (Bernstein (1996)), whereas the second part is based on the findings of Daniel Kahneman and Amos Tversky (Kahneman/Tversky (1974), (1979), (2000)) and originates from several psychological textbooks (cf. Esgate/Groome (2005), Fetchenhauer (2011), McKenna (2000)). Subsequently we want to determine what we can learn from this in general and conclude, which consequences result from this, especially for risk management in projects.

### **Historic Development of the Relation to Uncertainty**

In the book “Against the Gods” by Peter L. Bernstein (1996), the historic development is divided into four phases:

#### **Before 1200**

Until ancient times, people believed to be subject to the gods, who could be mildly tempered by sacrifices, and one could foresee the future by means of divination and oracles. With the spread of Christianity, the only change to this belief was that destiny was no longer determined by a variety of gods. From now on everything was planned by the intent of one god. Shortly before the end of this period, the Arabic numerals were introduced in the Western world and thus made numerical calculations much easier and respectively possible for the first time.

#### **1200 – 1700**

With the start of the renaissance and the reformation, the mysticism of the middle age was slowly overlaid by logic. For the very first time, mathematicians were concerned with gambling games and by this with risk. Furthermore, Daniel Bernoulli realized that different people may evaluate the result of a decision in a different way, which led to risk and opportunity profiles and subsequently to utility evaluations.

#### **1700 – 1900**

In this period of industrialisation, people started to collect data on the numbers of births and deaths. Demography became a subject and supported the development of insurances. Also the growing global trade was a perfect field of application for these insurances. Merchants began the first attempts of managing risks.

#### **After 1900**

Up to this time, risk was only related to insurances. The whole economic system was more or less seen as stable and risk-free. But then the first world war and afterwards the world economic crisis occurred. Economists (like John Maynard Keynes and Frank Knight) started to think about the fact that the pattern of the historic data is not necessarily an indicator of what might happen in the future. After the second world war, risk management became very important in the financial markets and a lot of Nobel prizes were awarded to scientists that worked in that subject like Harry Markowitz, Myron Scholes, and Robert Merton.

This very brief summary of the historic development shows that our relation to risk is influenced by a lot of different factors related to religious, social, and economic developments. And, of course, it has to be pointed out, that history is seen here only from a Western perspective. In other parts of the world, people with another cultural



background, might see things quite differently. Therefore, the findings of Geert Hofstede, stating that uncertainty avoidance is one of the main cultural dimensions (c.f. Hofstede/Hofstede/Minkov (2010)) are not surprising, but very reasonable.

On the other hand, it becomes obvious that a conscious consideration of risk started relatively late. And if one takes a look at the standard textbooks of psychology, one will recognize that psychologists quite often argue that the origin for many behaviours go back to the time, when men were hunters and gatherers, living in caves. Compared to that, the period of risk awareness is extremely short.

### **Individual Ways to Deal with Uncertainties**

Fundamental in the research about how human individuals handle uncertainties are the works of Daniel Kahneman and Amos Tversky (1974, 1979, 2000), which led to a Nobel prize in economic sciences in 2002 for Daniel Kahneman. These findings are part of the magnitude of ways to describe how human individuals act differently in diverse situations (e.g. too much information; need to act fast; not enough meaning) and are summarized as cognitive bias. To give an impression related to the scope of the current analysis, let us look at some ways to deal with uncertainties.

#### **Expected Value Approach**

Instead of working with probability distributions, people try to use substitutes, like averages, to calculate as if everything is deterministic. But this strategy does not work, especially in risk management, since risk is regularly located in the tails of a distribution and not in the middle: You can easily drown in a lake with an average depth of five inches!

#### **Availability Heuristic**

The availability heuristic is based on the notion that something that can be quickly recalled must be important, more important than alternative aspects, which are not as readily remembered. In other words, the easier it is to recall the consequences of something, the greater those consequences are often perceived to be. People often rely on the content of their recall if its implications are not called into question by the difficulty that they experience in bringing the relevant material to mind. For example, days of abnormal stock price downgrades are much easier recalled than those of upgrades.

#### **Anchoring Effect**

The anchoring effect describes the common human tendency to rely too heavily on the first piece of information offered (the "anchor") when making decisions. If such an anchor is set, other judgments are made by adjusting away from that anchor, and there is a bias toward interpreting other information around the anchor.

One extreme example of this anchoring effect is given in Strack/Mussweiler (1997): Students were asked to participate in a pre-test for the construction of a questionnaire assessing general knowledge. The questions consisted of 22 pairs of comparative and absolute questions. The first question was intended to set the anchor, whereas the second should quantify the effect. The interesting aspect of this test was that the anchors were obviously implausible. For example, one half of the participants were asked at first if Mahatma Gandhi died before the age of 9. Afterwards, they should guess the real age of death. In the second half of the sample, the anchor was set by asking, if Gandhi died





after the age of 140. The averages of the guesses were 50.1 in the first half and 66.7 in the second. By the way: Gandhi died at the age of 79.

The anchoring effect is very important, especially in negotiations, marketing and advertisement, but also in court decisions.

### **Representativeness Heuristic**

Representativeness in the sense of Kahneman and Tversky is seen as the degree to which something is similar in essential characteristics to its parent population, and secondly reflects the prominent features of the process by which it is generated. When people rely on representativeness to make judgments, they are likely to judge wrongly because the fact that something is more representatively does not actually make it more likely.

As an example Kahneman and Tversky described a woman named Linda in much detail and focussed especially on her women's rights and emancipation activities. Following, they asked the test persons if it was more likely that Linda was “a bank clerk” or “a bank clerk and a feminist”. The majority chose the latter. But this is of course impossible, because the latter is a subset of “bank clerks”.

As already mentioned, these examples shall only give an impression of what is meant by the variety of heuristics that human beings apply, because the amount of information is too large or too complex to handle. The complexity of handling uncertainties, to estimate probabilities or statistical parameters like percentiles, correlations, or the like is widely underestimated. A lot of people are overextended by that.

Additionally, this again reflects the importance of structured creativity techniques (like brainstorming, brain writing, Delphi method) during the risk identification phase.

### **Consequences for Project Risk Management**

Before we start to draw conclusions from the described aspects so far, let us have a look onto the human beings involved in the risk management process. Up to now, most of the mentioned issues are valid for risk management in general and not only for project risk management. Let us first have a brief glimpse on the current situation of risk management in the financial markets, since by this the special requirements in project risk management might become more plausible.

After bankruptcy of some US banks correlated with the rise of interest rates in the late 70's and early 80's, the need of risk management in the financial markets became a vital issue. This led to the first Basel account of the Basel Committee on Banking Supervision (BCBS) in 1988. Since that time banks were obliged to have an elaborated risk management system and these regulations have been permanently extended over the years until today.

The information in these systems is more or less historic and current data from the financial markets. Therefore, the basis of these systems is numerical data, distributions, correlations (or more detailed: copulas!), and further statistics. To generate these systems into the financial institutions a multitude of specialists were hired. Risk management is a parallel or overarching branch to day-to-day business. The applications of these systems mostly use Monte Carlo simulation, but the focus is not on the risk



identification (because of the historical data!), but more on the analyses of possible future scenarios (“stress tests”).

The prosperity of project risk management took place in the first decade of the third millennium (c.f. Campbell (2012)), a little later than in the financial markets, and we have to apprehend that there are marked differences in these two areas. Projects are always, by definition, different from each other. Therefore, there is nothing like a “day-to-day” business. A segregation of risk management from the other necessary tasks, is impossible. All the activities are much more interweaved. By this, it becomes clear that it is impossible to deploy specialists for risk management: The core risk management has to be performed by the personnel involved in the project itself. And this is not only argued because of agility, but because the risk is permanently omnipresent in each individual task. You can employ specialists merely temporarily to support special issues.

The majority of team members in real world projects are practitioners, often with an engineering background. They are trained to think in “if-then” conditions instead of correlations and in maximums and minimums instead of percentiles. The only obtainable historic data might be available from partly similar projects, but then you need experience to transfer these similarities.

Let us try to summarize the above mentioned aspects in a few postulations:

- Keep it simple, avoid complex statistical terms!
- Reduce the necessary data to a minimum, no overestimation of distributions!
- Phrase dependencies in terms of “if-then” conditions and not with correlations or the like!

### A Monte Carlo Example

As an illustration, we want to present an example by solving a fictitious risk management problem with Monte Carlo simulation. This example is related to time, but of course we could have chosen also examples that refer to costs or quality. In real projects the complexity can also be much higher. But just as an illustration, an example like this seems to be sufficient.

Let us assume that after an intensive risk identification process in which the whole project team, a lot of stakeholders, and additional experts were involved, the time schedule was formulated in the following way:

Activity	Predecessors	OD	MD	PD	remarks
A	-	2	3	4	
B	-	3	6	9	
C	-	2	5	10	
D	-	4	6	9	
E	A, B, C	3	7	10	
F	C, D	2	7	9	if the outside temperature is less than 5°C, the parameters change to 3 / 9 / 11
G	E	2	3	4	
H	E, F	3	6	8	if more than 10 workers can be assigned to this activity, the



					parameters change to 3 / 4 / 7
I	F	3	5	9	
J	F	2	7	10	if the duration of activity C is longer than 8, the parameters change to 2 / 9 / 12
K	G, H, I	2	6	8	if the start of K is later than 20, the parameters change to 2 / 7 / 10
L	I, J	3	5	8	

source: author's construction

Fig. 1. A fictitious project plan

The order of the activities is determined by the given predecessor relations. The durations of the individual activities are assumed to be uncertain and rated by three-point estimates (optimistic (OD), most probable (MD), and pessimistic durations (PD)). The team tried to keep it simple and reduced the necessary data to these three values per activity. In the following Monte Carlo simulation, beta-distributions with the given parameters – like in PERT – are generated.

Let us have a more detailed look at the remarks:

- **Activity F** has an additional condition related to the risk driver “weather”. This is quite usual in practice, because e.g. in a construction project it takes longer to dig out a building pit if it is cold. The weather parameters in the simulation model have to be updated over time.
- In **activity H** the risk driver is the “availability of staff”. If we manage to deploy more people, we can speed up the whole project. The estimated number of workers has to be updated as well.
- **Activity J** is in some sense comparable to activity C and experience led to the assumption that if the duration of activity C has been quite long, there is a higher chance that also activity J will last longer.
- The duration of **activity K** depends on the date when the activity can be started. In practice these kinds of conditions might be necessary because we have to regard holiday seasons, weekends or other special periods.

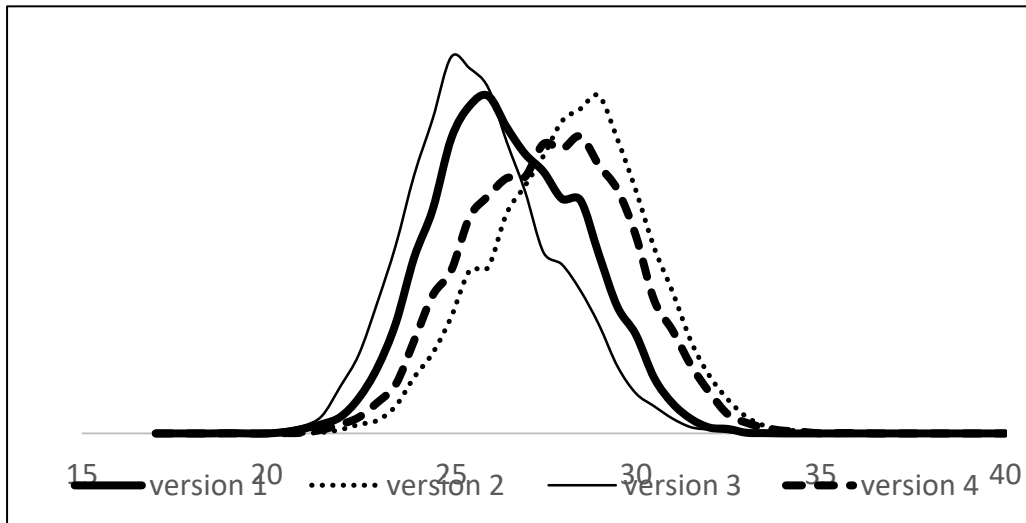
These are only a few examples to illustrate the above mentioned aspects. As you can see, we have conditions that refer to external risk drivers (activities F and H) and others that refer to the project itself (activities J and K). In the passage of time the forecasts of the external risk drivers hopefully become more precise and the durations of the finished activities are known. Therefore, the whole model hopefully becomes more and more precise over time.

Problems like that can be easily modelled by means of Monte Carlo simulation using Excel (c.f. Tysiak/Seresanu (2010)). Fig. 2 shows the densities of the durations of 4 versions:

- version 1: The conditions of activity F and H are both not active.
- version 2: The condition of activity F is active, but not the condition of activity H.
- version 3: The condition of activity H is active, but not the condition of activity F.



- version 4: The conditions of activity F and H are both active.



*source: author's construction*

**Fig. 2. The densities of the durations of the whole project**

In practice it might be useful to calculate benchmarks to orientate. One popular value is the 95% percentile, which is the duration of the whole project that is kept with a probability of 95%. These values are shown in fig.3. In the Monte Carlo model you have a magnitude of data that offers the opportunity to generate various statistics in order to answer special questions.

	95% percentile
version 1	29.9
version 2	31.4
version 3	29.2
version 4	31.1

*source: author's construction*

**Fig. 3. The duration of the whole project that is kept with a probability of 95%**

## Conclusions

Dealing with uncertainties is a quite difficult endeavor. Therefore, everybody who is involved in risk management should be aware of that. If you do not keep in mind that uncertainty is a topic that started to penetrate the human life quite late and by this overstrains the experience of a lot of people, you easily fail in the process of risk management. Especially in projects, the risk management is fully interweaved and pertains almost everybody involved, not only specialists. Having this in mind, we should follow a few rules to take care that risk management is effective to make the whole project a success.



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## **PROJECT MATURITY AS THE WAY TO IMPROVE NON-PROFIT ORGANISATIONS - TRUTH OR MYTH?**

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### **Abstract**

The notion of project maturity is associated mainly with business entities. However, it seems justified to make these deliberations also concern non-profit organisations that are facing the problem of how to use tools and methods applied in the private sector. Currently, the problem taken on in scientific discussions is the identification of the extent to which skilful use of project-related knowledge in non-profit entities may affect their flexibility in responding to the emerging challenges, the ability to maintain good financial condition or the effectiveness of undertaken activities. According to the author, the project approach allows for achieving results that would be impossible to achieve in any other conditions. The purpose of the article is to assess the project maturity of non-profit organisations in Poland and to demonstrate how this may affect the improvement of their project-related operations. The presented article was created on the basis of the available scientific publications and own research results of the author concerning the project maturity of non-profit organisations in Poland.

**Key words:** *project maturity, non-profit organisations, organisation improvement*

**JEL Classifications:** L31

### **Introduction**

A characteristic feature of non-profit organisations is their flexibility in response to social problems and the shaping of entrepreneurial attitudes for the social purposes. This applies, among others, to offering tools, innovative approach and flexibility, indispensable on the labour market, which enable active participation in recognising problems of the local environment, articulating them and, consequently, also solving them. This results in a simultaneous increase in the role of projects in non-profit organisations and implementation of a great part of the statutory activity through projects. Diversity and multiplicity of stakeholders of third sector organisations, their various expectations, and complex mutual relations contributed to the growth in the importance of value created by projects for these particular groups of stakeholders. Therefore, project management has become a tool allowing for translating the organisation's activities into measurable results and fulfilling the mission with diverse activities that are not directly related. Projects may allow the discussed organisations to effectively pursue objectives by skilfully responding to the volatility and needs of the environment.

When discussing non-profit organisations as projectised entities, attention should be paid to the special character of project management in these organisations. This results, above all, from variable conditions present both inside the project and inside the organisation's environment. The special character resulting from the possessed financial and human resources is mainly emphasised [Szańca 2016, p. 1]. The project approach mobilises non-profit organisations to achieve operational efficiency and to focus on the results. This is important, as these organisations are considered to be the most rapidly developing part of the socio-economic activity of modern states. As a result, the literature on the subject contains a variety of studies concerning attempts to develop new or adapt already well-known concepts, methods and tools



of management, taking account of the special character of these entities and their needs. The ability to pursue project undertakings may become an important asset of the functioning of non-profit organisations.

Projects may contribute to reinforcement of strengths and use of opportunities arising from the environment, as well as become one of the remedies to most weaknesses and troubles faced by non-profit organisations every day. Thanks to effective project management, these entities may substantially improve the organisation and raise its effectiveness. This should strengthen the credibility of undertaken activities in the eyes of stakeholders and translate into reinforcement of both financial and human potential [Domański 2012, p. 342].

Implementation of projects in non-profit organisations creates problems of managerial (adjustment of management to the project management methodology) or financial nature (ensuring financial liquidity or own contribution). On the other hand, it also involves positive aspects, such as the possibility to function and perform statutory activities, development of a brand, social status, or the possibility of implementation of unique undertakings. Each project is particular and often concerns broad topics and tasks, needs different resources, may be sometimes based on specific conditions, and often concerns activities that have not been performed before. Changeability of the project environment causes the need to make quick decisions and undertake quick actions that should meet the emerging needs of stakeholders of non-profit organisations.

Thanks to projects, non-profit organisations can overcome many new problems that have not been encountered so far. This is related mainly to the involvement of employees in teamwork, growth in their creativity and acquisition of experience fostering the learning process. In addition, it is worth emphasising that projects affect the creation of the so-called value added, characteristic for projectised organisations in each aspect of their operations. Therefore, it appears that non-profit organisations have a greater chance to achieve their social objectives (resulting from the demand of stakeholders) as projectised organisations. This may occur when they have knowledge about the project maturity, which affects success of their project undertakings. For this reason, it is worth answering the question of whether examination of project maturity may become a method to improve non-profit organisations? Project maturity of non-profit organisations is a very "young" issue, not described in the subject literature, so the presented article should contribute to filling in this gap at least to a small extent.

### **Project maturity of organisations**

The subject literature emphasises that there is no consensus with regard to the interpretation of the term "maturity in project management". It indicates three main theoretical trends, which include [Spálek, p. 25, Cooke-Davies 2007, p. 1234-1255, Kerzner 2005, p. 238-245]:

1. The process trend defining project maturity as the ability of a given organisation to implement processes focused on project management. This approach stresses the need to document, measure, control, and constantly improve processes related to project management. As a result, the probability of achieving a success in subsequent project undertakings increases. This trend is represented, among others, by T. Cooke-Davies and H. Kerzner.
2. The organisational trend combining project maturity with organisational sensitivity of a given entity to project management. The notion is perceived through the prism of development of organisational systems focused on the use of best practices in project management. Representatives of this trend include, among others, I. Saures, W. Ibbs, J. Reginato and Y.H. Kwak.
3. The contextual trend, described as being the newest one, is defined as a combination of the process and organisational area, but supplemented with aspects related to adjustment to the organisation's needs (e.g. Agile) or taking into account new areas (e.g. knowledge management). Representatives of this trend are D. Hillson, E. Anders and S. Jensen.



All the aforementioned trends emphasise that project maturity is the ability of a given organisation to effectively and professionally use techniques, tools and methodologies of project management. A mature organisation completes projects successfully and has the ability to gather best practices.

The increasing meaning of projects in the operations of organisations causes increasingly faster transfer of knowledge about this field of management. This caused the need to develop tools allowing for determining the level of project management skills in an organisation, i.e. project maturity models [Juchniewicz 2009, p. 46]. The starting point for the development of these models laid in issues related to process maturity as well as the Capability Maturity Model (CMM) and the Capability Maturity Model Integration (CMMI) [Twaites et al. 2004, p. 309-314]. At the moment, a few dozens of various models supporting examination of the degree of project maturity of an organisation are used around the world. The most popular include: PRINCE PMMM, Kerzner's Project Management Maturity Model, Hammer's PEMM, Process Maturity Model, BPMM, OPM3, SPICE [Cooke-Davies 2007, p. 1234-1255; Hillson, 2003, p. 298-311; Juchniewicz 2009, p. 47; Khoshgoftar and Osman 2009; Spalek, 2013, p. 26 – 29; Valdes et al., 2011, p. 176-187].

Examination of project maturity concerns both organisations that are not aware of the existence of projects in their operations, as well as entities that want to effectively complete projects but do not have skills related to project management [Juchniewicz 2009, p. 121]. There are many tools supporting this examination on the market. They have one common goal, which is the assessment of strengths and weaknesses of project management and the indication of possibilities of improvement in this area. [Kerzner 2005, p. 245]. It is possible to use simple and more complex tools, general or aimed at specific industries. However, as justifiably emphasised by H. Kerzner, "no model will be fully adjusted to given organisation, although some may come close. Usually several tools are chosen, or one tool is adjusted so that it would correspond to the specific nature of the organisation as well as possible" [Kerzner 2005, p. 245]. The issue with project management maturity, as rightfully noticed by S. Spalek, is multi-dimensional, and the available models are characterised by [Spalek 2013, p. 29]:

- focusing on single industries,
- large degree of complexity,
- focusing on research in the form of in-depth case studies,
- different amount and thematic scope of measurement areas (depends on the selected model)
- considerable differences in sets of the examined issues.

The above considerations indicate the need to build an original model for assessing the level of project maturity, or to adjust the existing models to the specific nature of the examined organisation. From this point of view, it is worth paying attention to the model created by Professor H. Kerzner. This model is characterised by complexity from the point of view of tools, such as CMMI; it is simple to use, universal (i.e. not aimed at any industry) and, more importantly, it is useful for every organisation, regardless of its size. It was created for organisations that apply the principles and techniques of project management [Kerzner 2001, p. 40-42]. This model is based on the traditional 5-point scale, i.e.:

- level 1 – Common terminology – this level contains organisations that see the importance of projects but are only just starting to realise the need for common interpretation of the principles and terms related to project management. The management supports project implementation in a chaotic manner. No trainings are conducted within the area of project management.
- level 2 – Common processes – at this stage, the organisation notices the need for standardisation of project management processes. Processes leading to an increase in the chances for success of the project are improved. What is important, these processes are common for all projects being implemented in the organisation, and the benefits arising from the project approach are noticed. This is reflected in support of projects at each level of management.





- level 3 – Singular methodology – it uses the synergy effect resulting from combining all methodologies in the organisation into one methodology. It simplifies control of the whole process of project management. The organisational culture is focused on project management. The methodology is based on informal links, and the bureaucracy is limited to a necessary minimum. Emphasis is put on the importance of complex and cyclical trainings within the area of project management.
- level 4 – Benchmarking – concerns organisations with large project experience. The organisation develops its own project management methodology. It uses benchmarking as a tool supporting decisions concerning the direction of further development. It is a continuous process. The organisation has permanent personnel that carries out continuous improvement processes. Benchmarking has both a quantitative character (processes, tools, methodologies) and a qualitative character (e.g. culture, personal skills).
- level 5 – Continuous improvement – concerns organisations with a strong position which, as a result benchmarking, make a decision concerning the suitability of acquired information in the improvement of its own project management methodology. They constantly monitor trends in project management and latest technological developments or look for improvements of processes being implemented. Knowledge acquired during project implementations is transferred to subsequent projects and made available to project teams in the future.

The Kerzner PMMM model is based on the analysis of nine areas of knowledge, described in detail in Project Management Body of Knowledge (PMBoK) [A Guide to the Project..., p. 11]. The assessment covers the level of advancement of tools and techniques used in particular domains for implementation of projects. Areas are divided into smaller groups of activities, and those - into very detailed tasks. Then, lists of questions are formulated, concerning the method of execution of particular tasks [Crawford 2015, p. 4].

The idea behind the presented model is universality, simplicity and commonness. This necessitated the conduct of self-assessment on the basis of preparation of a separate questionnaire for each maturity level. However, such a research method makes it impossible to obtain official certificates confirming a given maturity level [Juchniewicz 2009, p. 59].

The subject literature emphasises that research concerning project maturity are targeted, above all, onto two areas [Spalek 2016, p. 4]:

- assessment models of project maturity level – their further development and search for new models
- use of the results of the conducted project management maturity assessment and linking them with improvement in the organisation's operations.

The above trends are consistent with the author's own studies conducted among non-profit organisations in Poland, whose selected quantitative results are presented further in the article.

### **Project maturity of non-profit organisations in Poland – research findings**

The purpose of conducted research was to identify the level of project maturity of non-profit organisations in Poland. These studies were carried out in 2017 and 2018 among the group of 93 third sector organisations with project experience. The studies were carried out in the form of a survey in paper form, as well as in the form of an e-questionnaire with the use of a proper platform. The research's focus on non-profit organisations was purposeful, since these entities are poorly examined in the area of project management. The research used a modified project maturity assessment questionnaire that had been originally created by Dennis Bolles<sup>6</sup> [Bolles 2002, p. 178-189]. This tool was based on nine areas of project management, described in the PMBoK standard, which results in its high compatibility with the approach of H. Kerzner. For the purpose of the conducted research, the questionnaire was modified to a small

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<sup>6</sup> Long-term activist and certified member of the Project Management Institute.



extent, i.e. it was based on ten rather than nine areas of PMI knowledge modified in 2013. The study began with providing answers to several additional informational questions concerning: (1) position held, (2) project experience of both the person taking part in the study and the organisation, (3) number of completed projects along with their sources of financing, (4) level of knowledge within project management, and (5) level of support for the project approach. Further part of the questionnaire already concerned the organisation itself and the substantive aspects. The assessment consisted of 100 statements arranged into ten categories (10 statements in each). The examined organisation was to take a stance on descriptions given in a standardised table pertaining to the examined areas. The questionnaire adopted a verbal description of the given answers (0 = I don't know, 1 = Never, 2 = Sometimes, 3 = Usually, 4 = Often, 5 = Always). Such a form of research allowed for efficient calculation of the average defining the maturity level for each area of knowledge. Every area was individually assigned to one of the five levels of project maturity. On this basis (the sum of all areas and division by their number – ten), the general level of project maturity of non-profit organisations in Poland was calculated. The adopted scale of project maturity levels is consistent with the descriptions of levels presented in The Kerzner PMMM model, so - when assessing the obtained results - the author mainly refers to this model.

The obtained survey results were analysed statistically with the use of specialised SPSS software. The survey covered altogether 93 organisations, including 29 foundations and 64 associations. The study was dominated by organisations of national range of operations and functioning within the area of "education and upbringing" (30.1% of the respondents). The main source of financing of the operations of the examined organisations proved to be local government source (funds from communes, county or provincial government), which were indicated by as many as 75.3% of the surveyed organisations. On the other hand, the main type of implemented projects was related to undertakings focused on the youth (58.1% of responses), children (35.5% of answers) and training activities (41.9% of responses). The examined organisations in 50.5% (47 indications) indicated average<sup>7</sup> project experience, large<sup>8</sup> experience was indicated by 36.6% of respondents (34 answers) and 12.9% (12 indications) indicated that they have very large<sup>9</sup> experience in implementation of projects. The research sample did not include an organisation that did not implement projects at all. This results from the intentional sample selection, since examination of project maturity for a non-profit organisation that does not implement projects would defeat the purpose of the study. Detailed distribution of the examined group from the point of view of completed projects is presented in Table 1.

Table 1

<b>Number of completed projects</b>			
<b>Number of projects</b>	<b>Number of indications</b>	<b>Percentage</b>	<b>Accumulated percentage</b>
1-15	34	36.6	36.6
16-40	30	32.3	68.8
more than 40	29	31.2	100.0
<b>Total</b>	<b>93</b>	<b>100.0</b>	

Source: prepared by the author

The group of people filling out the questionnaire was dominated by project managers (63 indications – 67.7%) and project team members (20 indications – 21.5%). 59.1% (55 indications) of people responding to the questions indicated that they had an average level of knowledge within the area of project management (this means that they had read about project management techniques and/or observed their use and had been personally involved in these

<sup>7</sup> Average project experience - continuous implementation of individual or few projects.

<sup>8</sup> Large project experience - continuous, simultaneous implementation of many projects.

<sup>9</sup> Very large project experience - projectised organisation, all its operations involve implementation of projects.



activities), while 35.5% of the surveyed (33 people) indicated that they had formal education in project management and experience in using project management techniques. Only 5 people indicated that they had heard about project management but knew little on this topic. What is interesting, 54 people (58.1%) indicated that they believed that the use of the principles of project management throughout the organisation is necessary to ensure its continuous growth and competitiveness, while 37.6 (35%) of the surveyed indicated that the use of project management techniques is a good idea, but they did not know where and how they should be used in their organisations.

Table 2 below presents the approach to project management in the examined organisations.

Table 2

**Approach of the surveyed organisations to project management**

<b>N=93</b>	<b>Yes</b>	<b>No</b>	<b>I don't know</b>
The organisation has a project management methodology in place	48	39	6
The methodology is used in throughout the organisation	42	43	8
The organisation has a training programme in project management	22	70	1
IT support for project management is used	34	58	1

Source: prepared by the author

The presented data show that 48 of the surveyed organisations have developed a project management methodology. Therefore, it could be claimed that more than a half of the research sample approaches implementation of projects professionally. It is worth noting that as many as 42 organisations that declared the use of a project management methodology use in throughout the entire organisation. It seems that this percentage of indications (87.5%) results, above all, from the specific nature of functioning of non-profit organisations, which are characterised by the desire to share knowledge within one organisation as well as the specific character of implemented projects. In addition, the presented results indicate that only 22 organisations (23.6%) notice the need for introduction and implementation of training programmes related to project management. Most of the surveyed organisations (70 indications) do not see any benefits in participating in this type of trainings. The level of 36% of organisations using IT support of project management does not seem surprising in the case of third sector organisations.

The further part of the article presents the structure of project maturity of the surveyed non-profit organisations.

Table 3

**General project maturity level of non-profit organisations**

<b>Area of PMBoK</b>	<b>Mean</b>	<b>Standard deviation</b>
1. Integrity	3.19	1.064
2. Scope	3.53	1.010
3. Time	3.15	.932
4. Cost	3.83	.977
5. Quality	3.07	1.088
6. Human resources	3.45	.921
7. Communication	3.18	.937
8. Risk	2.68	1.113
9. Procurement	3.16	1.131
10. Stakeholders	2.34	1.047
<b>Project maturity</b>	<b>3.15</b>	<b>.871</b>

Source: prepared by the author



The project maturity level in the surveyed non-profit organisations was determined at the level of 3.15. It is an arithmetic mean of the results obtained in ten areas of PMBoK. From the point of view of the obtained result, non-profit organisations in Poland have project experience that can be qualified to the 4th level – Benchmarking. However, it should be noted that, in the case of two areas, i.e. stakeholders and risk, this level was determined as third. The other areas, excluding the area of scope and costs, have the value on the brink of entering level 4. Therefore, it is important to pay attention to the assumptions of the Kerzner's project management maturity model, which assumes the possibility of particular levels overlapping, but with the assumption that it is not possible to switch between levels, i.e. before the organisation enters the second level, it has to meet all criteria for level 1. This differentiates this model from other traditional models of maturity. Therefore, when analysing the data available, it is worth indicating the number of organisations that reached particular levels. These data are presented in Table 4 below.

Table 4

**Levels of project maturity of non-profit organisations**

Number of projects	Number of organisations at the maturity level	Percentage	Accumulated percentage
Level 1	0	0	0
Level 2	14	15.05	15.05
Level 3	26	27.96	43.01
Level 4	34	36.56	79.57
Level 5	19	20.43	100.0
<b>Total</b>	<b>93</b>	<b>100.0</b>	

Source: prepared by the author

When analysing the above data, it should be considered whether, in the case of the examined organisations, level 3 and 4 as well as 4 and 5 overlapped. In the first case, a situation may have occurred, in which - during works on its own methodology - the organisation undertook actions aimed at searching for the best solutions among other organisations on the market (benchmarking). On the other hand, overlapping of level 4 and 5 concerns situations, in which the organisation, by developing benchmarking actions and continuous improvement, causes increasingly faster improvement of processes. This results in a fact that the improvement cycle may cover both level 5, 4 and 3. This, in turn, is reflected in a situation, in which its own methodology (level 3) may require fundamental reconstruction. It should be emphasised that levels 2 and 3 do not overlap, since project management should be defined processes first, and only then the organisation's own methodology should be developed [Juchniewicz 2009, p. 50-51]. Therefore, 4th level of project maturity of non-profit organisations, with the result of 3.15, induces to question whether the level of their maturity does not overlap with level 3. To answer this question, the conducted research should be deepened.



Table 5

**Correlations among the results obtained by non-profit organisations in particular areas of PMBoK**

	Integrity	Scope	Time	Cost	Quality	Human Resources	Communication	Risk	Procurement	Stakeholders
Integrity	1	.700**	.786**	.638**	.601**	.575**	.591**	.546**	.603**	.482**
Scope	.700**	1	.859**	.715**	.743**	.628**	.717**	.673**	.648**	.529**
Time	.786**	.859**	1	.731**	.781**	.754**	.728**	.733**	.723**	.586**
Cost	.638**	.715**	.731**	1	.721**	.674**	.692**	.598**	.682**	.453**
Quality	.601**	.743**	.781**	.721**	1	.657**	.787**	.757**	.721**	.588**
Human resources	.575**	.628**	.754**	.674**	.657**	1	.721**	.718**	.774**	.618**
Communication	.591**	.717**	.728**	.692**	.787**	.721**	1	.764**	.790**	.717**
Risk	.546**	.673**	.733**	.598**	.757	.718**	.764**	1	.810**	.711**
Procurement	.603**	.648**	.723**	.682**	.721**	.774**	.790**	.810**	1	.717**
Stakeholders	.482**	.529**	.586**	.453**	.588**	.618**	.717**	.711**	.717**	1

\*\*Correlation is valid at the level of 0.01 (on both sides).

On the basis of the obtained research results presented in the Table 5, it can be noticed that quite strong interdependence can be noted between particular areas of knowledge ( $p < 0.01$ ). Furthermore, the results indicate that time is an area most strongly correlated with other areas of knowledge.

Table 6 below presents project experience of the surveyed organisations, including particular areas of PMBoK.

Table 6

**Project experience of non-profit organisations and maturity level in particular areas of PMBoK**

Assessment of project experience in the organisation	Integrity	Scope	Time	Cost	Quality	Human resources	Communication	Risk	Procurement	Stakeholders	Maturity
Very large	3.29	3.44	3.17	4.06	2.67	3.80	3.22	2.38	2.89	2.49	3.14
Large	3.37	3.74	3.28	4.02	3.40	3.58	3.30	2.91	3.35	2.39	3.33
Moderate	3.03	3.39	3.06	3.63	2.93	3.27	3.07	2.59	3.09	2.26	3.02
Total	3.19	3.53	3.15	3.83	3.07	3.45	3.18	2.68	3.16	2.34	<b>3.15</b>

Source: prepared by the author

The above data indicate that organisations with large project experience obtained a higher project maturity index than organisations with very large experience. The difference is not high, but it is worth considering whether the "routine" approach to project undertakings does not adversely affect the level of project management skills of organisations.

To sum up the above discussion, Table 7 additionally presents the correlation coefficient between institutional solutions and project-related activity of the surveyed organisations.



Table 7

**Relations between institutional solutions and project-related activity of the surveyed organisations**

		The organisation has a project management methodology in place	The methodology is used in throughout the organisation	The organisation has a training programme in project management	IT support for project management is used
Area of operations	Cramer's V	.250	.220	.245	.298*
	Validity	.142	.251	.138	.042
Employees with an employment contract	Cramer's V	.085	.050	.145	.064
	Validity	.756	.909	.430	.849
Employees with civil-law contracts	Cramer's V	.281*	.094	.182	.282*
	Validity	.048	.717	.267	.042
Employed volunteers	Cramer's V	.118	.073	.110	.213
	Validity	.591	.818	.617	.166
Project experience	Cramer's V	.426**	.331**	.481**	.270*
	Validity	.000	.009	.000	.035
Number of completed projects	Cramer's V	.288*	.087	.287*	.120
	Validity	.027	.723	.022	.517
Number of completed EU projects	Cramer's V	.131	.131	.248	.102
	Validity	.481	.481	.058	.621

Source: prepared by the author

\*. Correlation is valid at the level of 0.05

\*\* . Correlation is valid at the level of 0.01

Table 7 presents relations between institutional solutions and project-related activity of the surveyed organisations. The presented data concern qualitative variables, and the equivalent of Pearson's correlation for this type of data is considered to be Cramer's V coefficient, which can be interpreted in the same way. The presented data suggest poor interdependence between institutional solutions and project-related activity of the surveyed organisations. The strongest relation can be observed between project experience and functioning of management methodology in the organisation, as well as the existing training programme. Other factors do not have a significant effect on institutional solutions concerning implemented projects.

The limited size of the article prevents presentation of all results of the conducted study. It presents data that confirm that project maturity of non-profit organisations is an interesting and broad area for research.

### Conclusions

The growing role of projects in non-profit organisations causes an increase in the interest in effectiveness of implemented projects. This is reflected in the desire to improve the organisation's operations in the scope of project management, which affects its development. Implementation of this process is possible thanks to the use of the concept of assessment of the maturity level in project management [Spalek 2013, p. 9]. As a result of this approach, the organisation can perform a detailed diagnosis of the condition of project management, among others, by means of: (1) examining all project management processes, (2) identifying strengths and weaknesses of the organisation with regard to implemented projects, and (3) identifying its level of maturity as compared to the environment. Furthermore, the assessment of project maturity provides a set of tools supporting development of the organisation and helps implement the philosophy of continuous improvement [Juchniewicz 2009, p. 97-98].



The study of project maturity of non-profit organisations in Poland indicates the necessity to improve project activities, first for all, in the area of management of stakeholders, risk and quality. When analysing the presented data, it can be stated that:

- the assessment of project maturity is a way to improve non-profit organisations,
- project maturity models may constitute a credible instrument of measurement and assessment of the possibility of efficient implementation of projects in the organisation,
- the intensity of project-related activities affects the project maturity level to a limited degree,
- the use of solutions in project organisation affects the level of project maturity,
- project maturity is a new issue for non-profit organisations.

The article only presents selected - the most important ones, in the opinion of the author - issues concerning the assessment of the level of project maturity of non-profit organisations in Poland. The deliberations presented in this article are not exhaustive and should undergo further analyses and studies, conducted both by scientists and practitioners.

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## **PROJECTS AS TOOL FOR PROCESS IMPROVEMENT**

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### **Abstract**

In the lookout for new sources of increasing business efficiency and in response to dynamic changes occurring in the business environment, companies pay increasingly more attention to process improvement. Literature review on the subject along with a detailed observation of business practice lead to the conclusion that it occurs most often through the implementation of more or less complex process improvement projects. They are related to introducing changes to already existing processes as well as to new process design. In practice, their implementation faces various problems. The paper is of theoretical and empirical nature. Its aim is to present the project as a tool for process improvement and to specify the types of projects. It attempts to indicate the features that distinguish such projects and to present the difficulties faced by the implementers of improvement projects. To achieve such goal, the author conducted literature review focused on issues related to the improvement of processes in organizations and the essence of improvement projects. The results presented in extant literature as well as findings from author's own studies in organizations operating in Poland were analyzed. The considerations made in the study enable to state that process-improvement projects are distinguished by high priority of implementation, focus on quick, noticeable effects, connection with a larger program of changes and a relatively low budget for implementation. Improvement with the use of projects requires considering the entire complexity and scope of the improvement subject, and above all coordination with various concepts and methods of management such as Lean Management, Kaizen, Six Sigma or Lean Six Sigma and BPM. Implementation of process-improvement projects in Poland is in many cases in the initial phase of experiments. For this reason, more attention should be paid to their effective and efficient running, among other things minimizing the failures that accompany their implementation.

**Key words:** *Process Management, Process Improvement, Continuous Improvement, Process-Improvement Projects*

**JEL code:** M 19

### **Introduction**

When seeking new sources of improving the efficiency of conducted activities, as well as when responding to dynamic changes in the environment, organizations pay more and more attention to the improvement of processes. Literature review on the subject (Breyfogle, 2010; Harmon, 2010; Jeston and Nelis, 2014; Rosemann and vom Brocke, 2015) along with a detailed observation of business practice lead to the conclusion that it occurs most often through the implementation of more or less complex process improvement projects. They are connected with introduction of changes in the already existing processes and design of new processes. Continuous improvement of processes has become important for many contemporary organizations, since - as noticed by Rummier and Brache (2000) - organization is only as effective as its processes. The introduction of changes in the processes implemented by the company as well as improving their effectiveness and efficiency corresponds to BPM and other management concepts, such as Lean Management, ISO 9000, Six Sigma, Kaizen, Lean Six Sigma, TQM, Agile Management, Process Excellence. These concepts have many common features; they are linked through the motto stating that a process can always be improved, and





the faith in the strength and creativity of employees as the performers of processes (Gershon, 2010).

Process improvement takes place through the implementation of process-improvement projects. Two types of such projects may be distinguished: breakthrough projects, defined as radical, focused on redefining the existing processes, and projects consisting of implementation of incremental innovations, carried out by employees within the existing processes. Examples of the former are reengineering projects or implementation of new processes and/or products using the DFSS methodology (Design for Six Sigma). On the other hand, the latter type of process improvement projects consists of projects such as Kaizen, TPM, Lean, Six Sigma (using the DMAIC methodology), or Lean Six Sigma. The object of examination in the present study covers the former ones. Their implementation requires ensuring proper support, supervision, structure, communication, and conscious management. In practice, they face various problems. The very identification of their goals may be difficult, since - on the one hand - these goals should take account of increase in the value for the customer, the recipient of the process results, and - on the other hand - improvement in the results of the organization. In practice, these goals are sometimes in opposition to each other since the pressure to improve the performance does not always correspond to the delivery of high quality.

The article is theoretical and empirical in nature, with the aim to present project as a tool of process improvement and to characterize process improvement projects. It attempts to indicate distinctive features of such projects and present difficulties faced by people implementing process-improvement projects. To achieve this goal, literature review was conducted covering issues related to improving processes in organizations and the essence of process improvement projects. The analysis was based on findings from the extant literature, and the author's own study among organizations running operations in Poland.

### **Process improvement in contemporary organizations**

It is claimed that processes implemented in organizations fully reflect their functioning, moreover, they are inseparably related to company's activities, which, in consequence, makes it necessary to focus on the methods of their improvement (Boulton, Libert, Samek, 2000). The importance of process orientation has been pointed out in literature and in management practice for approximately 25 years. Some of the first promoters of this concept were Davenport and Short (1990), as well as Hammer and Champy (1993). Studies conducted at the end of the 1990s By Frei et al. (1999) showed the positive effects of process orientation. McCormack (2001) provided evidence to prove that process orientation and process improvement help companies improve their business performance and reduce conflicts between functional areas. At the same time, strong association between effective processes and increase in customer satisfaction were indicated in the research carried out in Sweden by Gustafsson and Nilsson (2003). The above associations were confirmed by the results of further studies (Raschke, 2010; Dijkman, Lammers and Jong, 2015). Company's profitability is highly dependable on its processes (Lientz and Rea, 2001), and solving the process problems can lead to the increase of customer satisfaction, and reduction of lead time and cost (Madison, 2005). Business process improvement is a good basis for business enhancement (Siha and Saad, 2008). Improvement in the field of process management aims to increase the effectiveness of the performed activities and entire processes, and, as a consequence, contributes to greater competitiveness of companies. Business dictionary states that this is a "systematic approach to closing of process or system performance gaps through streamlining and cycle time reduction, and identification and elimination of causes of below specifications quality, process variation, and non-value-adding activities" (businessdictionary.com).

It has a strategic dimension, but is carried out at the operational level, in the places of process implementation. It may consist of: elimination of activities that do not contribute value for the customer, introduction of activities increasing the quality of results and customer



satisfaction as well as improving communication between the process participants, introduction of control activities so as to minimize repetition of errors in subsequent processes or actions preventing generation of defects or mistakes. Improving actions may be reactive and proactive. Therefore, companies may use an analytical-diagnostic approach and a prognostic-synthetic approach. Process improvement may take place by way of radical (so-called revolutionary) and/or incremental (so-called evolutionary) transformations. In the first case, we are dealing with restructuring (reengineering) of business processes of the organization, understood as a change in the structure and/or implementation of processes, sometimes connected with a change in the business model. The previous ("old") processes are reconfigured, redesigned, new processes are also designed, and also process outsourcing is used and technological changes are introduced (Horvath & Partners 2005). Thorough process changes are a derivative of changes in the business model (strategy of the company) or they can be associated with customers' demands.

On the other hand, evolutionary changes made in processes are identified with their optimization. As opposed to reengineering, they concern particular components of business processes. When introducing them, the "bottom-up" approach is used. This type of improvement is focused on the inside of the company, which requires significant participation of employees and their familiarity with the present condition of processes. Its aim is to search for compromises in simultaneous improvement of all basic attributes of business processes (time, punctuality, quality, cost, customer satisfaction), which bears signs of optimization of business processes (Horvath & Partners 2005). The aforementioned methods use different tools. Restructuring of processes corresponds to the business process reengineering method (BPR) or kaikaku, whereas optimization - with methods such as Kaizen, Lean Management or Six Sigma.

The division between radical and evolutionary approach to process improvement is also reflected in the ISO 9001:2015 standard, where reference is made to:

- breakthrough projects that lead to a radical change, usually carried out by teams of employees outside of their routine activities,
- regular, small-scale changes introduced in the existing processes by employees in the course of their everyday work.

The aforementioned methods of improvement are not mutually exclusive, on the contrary - they complement each other. Minor improvements help solidify fundamental breakthrough changes.

In further parts of the study, the author will focus on continuous, regular improvement of processes; the concept of reengineering will not be discussed.

Introduction of regular, gradual changes in process implementation is connected with the idea of continuous improvement (CI), introduced many years ago by W.E. Deming. It is based on the PDCA cycle and it closely resembles the Japanese outlook on the possibilities of improving the quality of processes and products. Deming pointed out that all business processes had to be considered and that they all needed feedback loops in order to improve (Singh, Singh 2015). Today, particular emphasis in this type of activities is put on process improvement initiatives yielding benefits both for the company itself, as well as for its customers and other parties concerned (stakeholders). M.L. Frigo (2003) refers to this, stating that a "company may improve its processes and thus operate more effectively, but these actions are worthless if their final result does not impress the customers". Many researchers define Continuous Improvement (CI) more generally as a culture of sustained improvement targeting the elimination of waste in all systems and processes of an organization (Singh, Singh, 2015). Table 1 contains a review of definitions of the notion of Continuous Improvement.

Table 1

**Review of definitions of Continuous Improvement**

<b>Author</b>	<b>Definition</b>
Deming (1986)	Continuous and never-ending improvement of the production process and services that causes improvement in



	the quality, productivity, and reduction in costs.
Imai (1997)	Progressive improvement involving all employees of the company.
Caffyn (1999)	Process implemented in the whole company, focused on continuous incremental innovations.
Caffyn, Bessant, Gallagher (2001)	Particular package of procedures that can help the organization improve what it currently does.
Dahlgaard, Kristensen, Kanji (2002)	Small continuous changes for the better.
Brunet, New (2003)	Omnipresent and continuous actions, beyond the normally specified roles of the participants, for the purpose of identification and achievement of results that contribute to achieving organizational objectives.
Boer, Gertsen (2003)	Planned, organized and regular process of permanent, incremental changes in the existing practices, covering the whole company, aiming at improvement in company operations.
Bhuyan and Baghel (2005)	It is a company-wide process of focused and continuous incremental innovation
Chang (2005)	Continuous improvement implemented in a cycle of establishing customer requirements, implementing these requirements, measuring accomplishments and continuing the identification of customer requirements in order to find areas where improvements can be made.
Kirner et al. (2005)	It is an approach in management, where - through continuous changes - the quality of products and businesses processes is improved, and thus, consequently, its competitive position is improved.
Blazey (2006)	This is an ongoing improvement of products, programs, services, or processes.
Bhuyan et al. (2006)	Culture of sustainable improvement, the goal of which is to eliminate losses in all organizational systems and processes, covering all their participants.
Manos (2007)	Subtle and gradual improvements that are implemented all the time.
Garcia et al. (2008)	Small incremental changes in productive processes or in working practices that allow for an improvement in some indicators of performance.
Singh, Singh (2015)	The phrase “CI” is associated with a variety of organizational developments including the adoption of “lean manufacturing” techniques, total quality management (TQM), employee involvement programs, customer service initiatives, and waste reduction campaigns.

*Source: author's literature review*

The analysis of various definitions of continuous process improvement makes it possible to state that it is a purposeful action, assuming slow but systematic and progressive positive change in selected process parameters (time, cost, quality), in the mutual connection between



these parameters. The mutual connection of process parameters, with simultaneous consideration of mutual dependences between processes, guarantees adopting a system approach to processes and allows for defining continuous process improvement as optimization. This kind of improvement involves building upon the capabilities found in the currently held potential and introduction of changes that, even if they are only small incremental changes, may bring improvement in the quality of functioning of a given organization and increase customer satisfaction. Introduction of continuous process improvement into the management practice means implementation of an entire range of various projects, usually with a small scope and relatively short time of implementation. This corresponds with the assumptions of the Japanese Kaizen philosophy, where employees must demonstrate strong involvement in identification of problems and in seeking opportunities for improvement of process implementation. Kaizen is a kind of thinking and management practise. It is a philosophy used not only in management field but also in everyday life in Japan. It means gradual and continuous progress, increase of value, intensification, and improvement (Karkoszka and Szewieczet, 2007). Kaizen depends mainly on human efforts to improve results, and this requires process improvement. According to Imai (1997), a process-oriented approach, referred to as the “plan-do-check-act” (PDCA) cycle is used for process improvement. Plan refers to setting a target for improvement; do is implementing the plan; check is controlling for effective performance of the plan; and act refers to standardizing the new (improved) process and setting targets for a new improvement cycle. This cycle is described as “improving cycle”. The main rule of Kaizen is as follows: Kaizen is process-oriented, i.e. before results can be improved; processes must be improved, as opposed to result-orientation where outcomes are all that counts (Imai, 1997). The principle has at least two practical consequences for the improvement process. First, management’s main responsibility is to stimulate and support the effort of organizational members to improve processes. At the same time, employees must demonstrate a strong commitment to identifying problems and looking for opportunities to improve the implementation of processes. It is also necessary to keep in mind that Kaizen is based on a low-cost and common-sense approach to introduction of changes.

### **Process improvement projects**

Processes require continuous improvement for various reasons. These may be: the pressure to reduce costs of implementation, the need to shorten their duration, growing competition, growing customer requirements, individualization of their needs, etc. Meeting these requirements involves not only organizational and technical solutions, but also affects personal aspects. This results in growing requirements for employees, who "take on" the customer requirements. It is also necessary to note that the improvement of processes becomes more significant the more the management wants to increase the company efficiency. According to Nair et. al. (2011), process-improvement projects are an important cornerstone for continued business success.

Over the years, initiatives regarding process improvement have evolved from projects aiming at improvement in production processes, focused on improving quality, decreasing waste, etc. towards introducing them throughout the organization, also with regard to administrative, office and service processes. Improvement projects may concern reorganization of entire processes, as well as aim at solving specific problems emerging in their performance. They may also support a larger program, related e.g. to introduction of various management systems to the company. Literature review on the subject allows for stating that currently the most often implemented process improvement projects are projects based on Lean, Six Sigma and Lean Six Sigma methodology (Spector, 2006; Näslund, 2008, Chakravorty, 2010, Nair, 2011).

Process improvement projects can be classified differently, e.g. from the point of view of the subject, the area of impact, the time of implementation, the scope, the role of process competence center in the project, the way the project is organized, etc. The subject criterion



enables division of projects into those, which aim at reorganization of processes, and projects, which focus on process optimization. At the heart of those projects lies a specified problem, which is so apparent that it requires a solution. When it comes to the impact area, it can be stated that the effects of completed projects may be detectable only within the given process, but may also affect performance of other processes, as well as improvement projects. Bearing in mind the mutual impact of implemented processes, the effects of many improvement projects spread onto other processes. Due to the implementation time, we can refer to projects with a longer and shorter time perspective, but these are, by assumption, usually projects lasting 6-8 weeks. The time perspective is associated with the scope of the project; the greater it is the more it automatically extends the implementation time. Different time will be required for a project concerning introduction of many changes in the process and for a project related to introduction of minor improvements. Implementing the BPM initiative, either as a project or as a program, it is essential to individually adjust the scope and to have different BPM flavors in different areas of the organization (Rosemann and vom Brocke, 2015, p. 106). The last criterion refers to the way a project is organized, namely the division of work between the project participants and laying down the principles of decision-making, communication and cooperation. At times, process-improvement projects may require an adaptive problem-solving approach rather than a hierarchically driven structured method, especially when complexity and uncertainty are present (Pavlak, 2004). An important role here is played by the entity initiating the project and the process competence center, which - at the stage of intensive development of process orientation - may play an important role and in a natural way initiate and support implementation of improvement projects.

A very important role in process-improvement projects is played by the organizational context, understood as the specific, individual conditions of functioning of companies, their opportunities and limitations in the conducted operations. Process-improvement projects typically have somewhat blurred boundaries between the project and the environment (Ekstedt et. al., 1999). For this reason, they require high flexibility in implementation. In the literature on the subject, close attention is paid to strong enthusiasm that accompanies the initial stages of their implementation, but also to the quick loss of motivation and commitment to maintaining the effects of the completed project. For example, the results of conducted research suggest that almost 60% of all corporate Six Sigma initiatives do not yield the desired results (Chakravorty, 2010). Employees involved in the process improvement project in the initial phase gladly undertake all necessary works, engage in collection of data on the process implementation environment. They also identify problems and suggest possible improvements, so as to achieve the planned goal of the project. At this stage, top and middle managers often strongly stress the importance of the project and inform employees of the improvement initiative being the top priority. If the project team achieved the planned purpose, the improvement project is considered a success. Then the phase of maintaining the project effects should take place, however in practice various problems may appear at this stage and often a return to old methods of performing operations in processes may take place. This happens particularly when employees, devoting a lot of attention to the matters of project implementation, neglect their daily responsibilities. Pressured by their direct superiors, who require diligent performance of daily obligations, employees may be prone to returning to old, less effective methods of performing improved processes. Such situations may strongly discourage from implementing subsequent projects, and employees may lose the sense of meaning of the idea of continuous improvement of processes. In practice, in the final stage of the project, team members are often unable or unwilling (for the reasons described above) to face the tasks of re-improvement and they may eventually cease to make efforts towards it. Moreover, this situation is often connected with the lack of reliable evaluation of the obtained results, as well as the lack of incentives to undertake further initiatives.



### **Research methodology**

The present paper is based on a pilot study, whose goal was to explore the kinds of improvement projects introduced by companies when improving business processes. An attempt was made to indicate distinctive features of this type of projects and difficulties that accompany their implementation. These considerations were linked with process maturity of the examined companies and the management concept applied by them.

To assess these issues, an online questionnaire designed by the author was sent directly to desired recipients via e-mail. The selection of the sample was intentional. The recipients were people working in companies that have introduced management systems focused on quality (ISO 9001, Six Sigma), cost reduction (Lean Management) or on these two aspects together (Lean Six Sigma). Process improvement plays the leading role in the assumptions of these management concepts. The author knew the respondents from all kinds of courses/trainings on process management and quality management. To conduct the study, diagnostic survey method was applied in form of questionnaire survey. The survey was divided into two parts. The first part was concerned with diagnosis of process maturity of the examined companies. On the basis of the CMMI model, which is currently one of the most popular models of process maturity (Albliwi et al., 2014), five descriptions pertaining to production, administration (office) and service processes were formulated. They concerned:

- process orientation on the internal and external customer,
- identification and description of processes,
- measurement of processes,
- predictability of process implementation,
- process improvement initiatives,
- ownership of processes (process owner),
- responsibility for implementation of processes,
- availability of resources for implementation of processes.

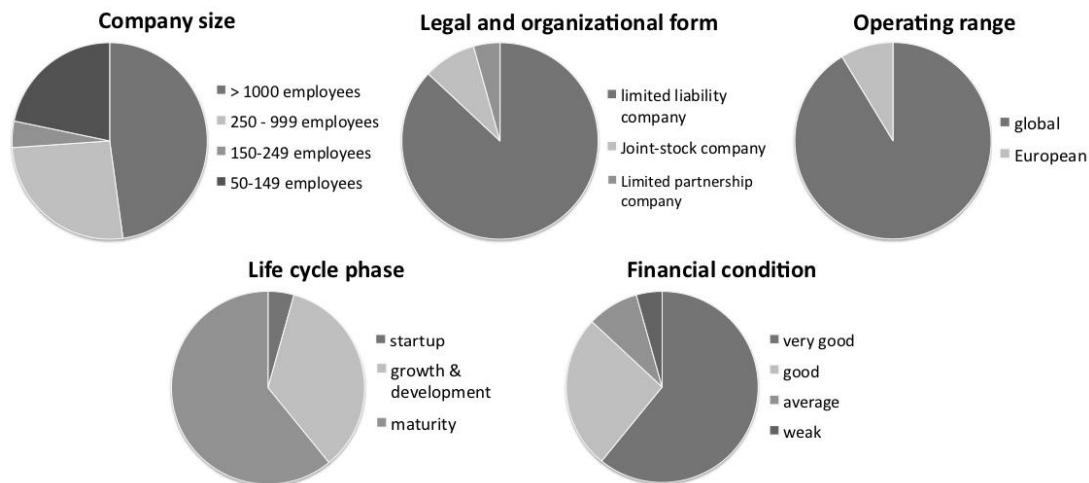
This section of the questionnaire used a 6-point scale of responses, from "absent" to "very much present". The purpose of filling out the survey was to select a situation most corresponding to the reality present in the company they represented.

The second part concerned process improvement projects. It contained both questions with an option of single and multiple choice, as well as indicating an answer on a proposed scale with the range described above. The respondents were asked for reasons of process improvement, types of process-improvement projects and characteristics of these projects as compared to other projects implemented in the companies, as well as management concepts that accompany the process improvement initiatives. An important part of the questionnaire was constituted by questions on the difficulties in the implementation of improvement processes, the attitudes of employees and the management staff. The questionnaire also contained questions about projects that had not been completed, and the goals of which had not been achieved. Altogether, the survey comprised 30 items.

The study was conducted in the period between 8 January and 8 March 2018. Seventy people were asked to participate in the study, and the surveys were filled out by 23 people, return rate at the level of ca. 33%, full completeness. The group of respondents consisted of both managers of production areas, shift managers, leaders of production processes, as well as lean managers, continuous process improvement engineers, continuous improvement specialists, quality engineers, the chief technologist, and the logistics director and manager.



The examined sample was dominated by large companies with global range of operations. These were mainly limited liability companies with very good financial condition, in the maturity phase. Figure 1 depicts the characteristics of the studied companies.



Source: author's work based on author's research

Fig. 1. Characteristics of the studied companies

### Research results and discussion

The analysis of the conducted study allows for stating that the examined production companies pursue improvement initiatives in both production as well as administration and service processes. However, when comparing the frequency of their implementation, a clear difference can be noticed between them. Projects improving production processes are often implemented once a month (12 indications) and once a quarter (6 indications). The respondents suggested that they result from the current, still changing needs of the customers. These companies have well functioning employee suggestion systems, encouraging continuous improvement. With regard to administrative processes, the most frequently indicated answers suggest that the processes are either not improved at all (9 responses) or improvement initiatives are undertaken only once a month (10 responses). Few respondents pointed to their improvement once a quarter (2 responses), once every six months (two responses), once a year (1 response), once every two years (1 response).

Yet another frequency of implementation can be noticed in the case of service processes. Responses were to the same degree dominated by the answers: "such projects are not carried out", "they are carried out every month", "they are carried out every six months". Attempts were made to look for a connection between the frequency of process improvement initiatives and the main reasons for process improvement. However, these links are not clear, since - both in the case of production, administration and service processes - the main premise of implementation of process-improvement projects is the pressure to improve the companies' results. However, in the case of administration processes, an additional factor seems to be attributable in recommendations of external auditors and needs reported by the customers. The latter are also visible in the case of service processes. On the other hand, certain relationship can be noticed between introduction of the Lean Management concept in the examined companies and the premises of process improvement and the goals of improvement projects. Lean focuses on improvement in effectiveness of implemented processes, aiming at creation of products and



services at the lowest costs and as quickly as possible (Antony, 2011), which, in turn, goes hand in hand with increasing the obtained results.

The respondents were, first of all, employees from the production field, therefore they usually participated in the following projects:

- projects related to introduction of the 5S method, aiming at improvement in work organization on production positions,
- projects concerning fundamental reorganization of production processes,
- Kaizen projects focused on solving qualitative problems and long duration of production processes.

As regards Poland, similar observations were presented by M. Urbaniak (2010), whose research indicates that 5S projects and projects based on the Kaizen philosophy are usually introduced by production companies employing more than 50 people, with international range of operation, offering products for the B2B market.

The study conducted by the author also indicates a very low level of implementation of DMAIC projects (3 people) and DMADV projects (1 person). This, in turn, is currently different on the American market, where the Six Sigma and Lean Six Sigma methods enjoy great popularity among large companies (Chakravorty, 2010; Antony et al., 2011). Data presented in the Aberdeen Group Report indicate that these enterprises take into account the following reasons: operational improvement in implemented processes by limiting costs (75%), improvement in standardization of activities (75%), effective achievement of the assumed goals (72%), decrease in internal non-conformities (32%) (The Six Sigma Report...2006).

The responses obtained in this area may be referred to the management concepts present in the examined companies. They are definitely dominated by Lean Management; twenty-two entities have introduced the principles of this concept and in their everyday operations use such tools as: “5 x why?” method, value stream mapping or Problem Solving. At the same time, next to Lean Management, companies have introduced the quality management system of ISO 9000 series (16 responses) and declared the presence of the Kaizen philosophy (16 responses). To a smaller extent, they pointed to the presence of the Six Sigma method (7 entities) and the Lean Six Sigma concept (8 indications). The small presence of the last two is associated with the low execution of DMAIC and DMAICV projects or a total lack of their execution. On the other hand, the lack of connection between the presence of the Kaizen philosophy in the examined companies and the bottom-up project implementation initiatives may be surprising. The respondents concluded that the main initiators of improvement projects are the management board and department heads, while process performers were indicated only in five cases.

The vast majority of the surveyed held the opinion that improvement projects contribute to the improvement in process results; 18 people concluded that positive associations can be seen between them. However, the study did not attempt to examine how long the effects of the completed project remained and how they affect the results of the whole company, and, as it emphasized by Breyfogle (2010), teams often report achievements incorrectly, i.e. the sense of success is false. For this reason, in order to improve the probability of success of improvement projects, the same author suggests that "however, for long-lasting success process improvement efforts need to be part of an overall enhanced business management system. This structured business system needs to integrate predictive scorecards with targeted strategy creation that blends analytics with innovation, and which leads to the creation of functional goals that pull for the creation of enterprise-as-a-whole-beneficial improvement projects. An enterprise's financials are a result of the integration and interaction of its processes, not of isolated individual procedures. Using a whole-system perspective, one realizes that the output of a system is a function of its weakest link or constraint". This issue is therefore a serious limitation of the conducted study, since in many situations, it is necessary to consider many levels of project success along with integration of many management factors (Shenhar, 2001; Shenhar et al., 2002).





The survey questionnaire also contained a question about the difficulties that had been observed when implementing process improvement projects. The respondents mainly indicated general fear of change of the team members, failure to meet deadlines for implementation (many projects had not been fully implemented - the assumed goals had not been reached - 16 indications), difficulties in access to the required resources, inactivity of the project's sponsor. Various kinds of restrictions in implementation of process improvement projects are pointed out e.g. by Breyfogle (2010), who suggests that, when pursuing this type of projects, we should consider the theory of constraints (TOC).

Pointing out further difficulties in improvement project implementation, it is worth paying attention to the fact that some respondents signaled lack of commitment among project team members, lack of consistency in the objectives of particular team members and their lack of experience.

People implementing process improvement projects also indicated excessive additional workload during project implementations. Consequently, in their opinion, many project activities are taken under time pressure, with no time for a well-thought-out analysis. The same problems were noticed by Chakravorty (2010) in his research, and he compares them to Six Sigma projects currently implemented in many American companies.

In respondents' opinion, there are too few incentives, encouraging to both work on the improvement project and perform daily duties. The support provided to the project team members, in the opinion of the surveyed, is insufficient. They claim that actions in this respect are feigned. Meanwhile, the literature on the subject considers e.g. involvement in leadership, selection of the project's purpose, use of improvement specialists, application of the structural method, psychological safety in process improvement teams as necessary to ensure the planned results of the project (Nair et al., 2011).

From the perspective of other projects being implemented in the company, process improvement projects are distinguished by:

1. high priority of implementation
2. focus on quick, detectable results,
3. connection with a larger program of changes,
4. low budget for implementation.

The present study was also aimed at determining the process maturity level of the examined entities and confronting it with the implementation of process improvement projects. Among the examined entities, the lowest process maturity level according to CMMI were not indicated by any respondent. The second level was suggested by five respondents, the third level by eight, the fourth level by ten, and the highest fifth level was declared by two respondents. The most common fourth level of process maturity signals that "processes in the organization are measured. A fully-defined measuring system appears. Processes are managed in terms of quantity. Their implementation is monitored, and the causes of variability are analyzed by means of the statistical process control method. Processes have a largely predictable course, are targeted at fulfillment of the customer expectations and accomplishment of strategic objectives. The process management improvement process is applied, using modern tools".

The declared process maturity level corresponds to the opinions of the surveyed, who - pointing out the strengths of the implemented processes - stressed strong and very strong focus on external customer needs and expectations, as well as strong focus on economical consumption of the possessed resources and connection between their implementation and strategic goals. This issue is important, since - as stated by Bessant and Francis (1999) - to develop CI capacity, organizations must transition to the development level, where strategic goals are communicated and implemented, and improvement actions are guided by the process of monitoring and measuring with regard to those strategic goals.

The respondents also noticed the weaknesses in the implementation of processes, among which they indicated high consumption of resources and their uneven distribution. The



description of interrelations between processes also requires improvement. As regards office processes, the respondents emphasized that their greatest weakness is the long implementation time, causing dissatisfaction of internal customers (15 indications). The respondents also provided their opinion on implementation of service processes, where they saw the main weakness in the high cost of their implementation. They also indicated coordination problems in the provision of services between processes. In spite of the indicated difficulties, the obtained results of projects encourage their further implementation, as stated by 16 of the examined people.

### **Conclusions**

The analysis made in the study allow for stating that, in the case of production, administration, as well as office processes, their improvement with the use of projects requires consideration of the entire complexity and scope of the subject matter of the improvement and, above all, coordination of the various management concepts and methods involved in this task, such as Lean Management; Kaizen, Six Sigma or Lean Six Sigma, BPM. It is also necessary to take into consideration the fact that these concepts, in the specific company, may function on different levels of process maturity, which may facilitate or hinder improvement initiatives. If we considered projects to be a proper tool for process improvement, then it is necessary for them (projects and processes) to be able to proceed effectively over time, supporting each other rather than interrupting (Hab and Wagner, 2010). Therefore, it is desired to ensure their interaction (coordination, synchronization). Improvement of single processes must proceed in conjunction with other processes, taking into account the internal chain of connections between them, as well as the theory of constraints. Both quantitative (statistical) and qualitative tools, such as auditing (internal and external) as a method of investigating and discovering the potential for improvement of the system as well as tools for testing and checking the compliance with procedures and rules of conduct can be helpful here. The success of a project implementation involves clearly specified objectives, the best support of the management, competent project manager and team members, sufficient availability of resources, appropriate control mechanisms, appropriate communication channels with possibility of giving feedback and responding to customer needs. These issues, considered to be the key factors of success of projects, have been noticed in the subject literature for a long time (Slevin and Pinto, 1986). By undertaking process improvement initiatives, we can, as a consequence, improve quality, increase flexibility or punctuality of processes to the level expected by customers and, at the same time, reduce costs within the company.

The reasons for undertaking process improvement projects can be divided into several groups. The first premise for the need for process improvement involves growing customer requirements. The second source of the need for improvements involves instability and excessive variability of processes, which are reflected in the lack of implementation of processes required by customers. Adding to this are reasons related to the companies' pursuit of the growth in business effectiveness. In all the above cases, it is necessary to improve processes, so that they would fully meet the basic requirements at the lowest cost possible. In order to be able to ascertain the impact of the project implementation on the process results and the results of the whole company, it is necessary to - already at the initial stage of the project - formulate expectations that customers have for the analyzed process. These requirements are usually imposed in a descriptive manner. To allow for stating the extent to which the examined process meets these requirements before and after the end of the project, it is necessary to introduce measures translating the wishes of customers into clear and unquestionable numeric values.

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