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Procedia Engineering 196 (2017) 607 – 615

Procedia Engineering

www.elsevier.com/locate/procedia

Creative Construction Conference 2017, CCC 2017, 19-22 June 2017, Primosten, Croatia

Project Management Success Factors

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Abstract

Project management success is extremely interesting topic from scientific, as well as practical point of view. Namely, different models of project management success emerged through history, indicating the level of thoughts considering management of project successful. This article differs project management from project success, gives definitions of project management success, aims to review different models of project management success, differs success of managing public and private projects and gives a special accent on present situation in context of project management in Croatia. Comprehensive literature review is given, analysis and synthesis of most interesting material is made, and applicable practical guidelines are defined.

Peer-review under responsibility of the scientific committee of the Creative Construction Conference 2017

Keywords: project management, success, public project, EU project, case study

1. Introduction

Maybe the most beloved word of any project practitioner is “success” [1]. There are two main success concepts when talking about projects: project success and project management success. There are similarities, as well as differences, between these two project success dimensions [2-5]. The main difference concerns with linking project success with result of evaluation of overall project goals achievement, while project management success relates to traditional measurements of time, cost and quality performance [2, 3, 6, 7]. However, due to existence of many different models of both project and project management success, it is hard to make a strong differentiation between them, mostly because of their mutual relationships.

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Peer-review under responsibility of the scientific committee of the Creative Construction Conference 2017
doi:10.1016/j.proeng.2017.08.048

Nomenclature

EU	European Union
WWTP	Wastewater treatment plant
GIS	Geographic information system
PM	Project management
WBS	Work breakdown structure
OBS	Organizational breakdown structure
SWOT	Strengths, weaknesses, opportunities and threats
PDM	Precedence diagram method
EVM	Earned value management

Although there is no consensus definition of what project success consists of [7- 10], authors are agreed that project success can be achieved through good actions of project manager [11-13].

This article deals with project management success with an aim to contribute to today's knowledge and practices existing on the area of construction management in particular. Construction projects success is namely fundamental question for most governments, users and communities [12], so it is very important never to stop looking for new ways of contribution to improvement of construction management success.

This aim will be achieved through four parts. In the first part, comprehensive literature review is given, defining different meanings and models of project management success through time. In the second part, project management success factors are given in a breakdown structure. The structure consists of three parts: project management competence, organizational elements and project management tools, methods, methodologies and techniques. This breakdown structure is explained through management of public, EU co-financed water projects in the third part. Finally, recommendations for future development are given in the fourth part.

2. Project management success

Project management is planning, organization, monitoring and control of all aspects of project, with motivation of all included to achieve project goals on safe manner, within agreed schedule, budget and performance criteria [14]. It can be seen from the definition of project management, that it is focused on project performance, regarding short-term dimensions of project success – adherence to criteria of time, cost and quality. The "iron triangle" model itself was the very first model of project management success [2], which has later proven to be only a part of overall project success. From this point of view, it is clear to see how it is possible to have a successful project with unsuccessful project management, and vice versa. Namely, project can be successful despite unsuccessful project management because it has achieved higher and long-term goals. In the moment when management of project stops, short-term orientation can be unsuccessful, but long-term outcome can be successful, because wider set of goals are satisfied, instead of narrow subset which project management consists of [15].

Besides the "iron triangle", and taking into account considerations of project management success, it is possible to find many different approaches [16]. Project manager is not responsible only for time, cost and quality management, but also integration, scope, human resource, communication, risk and procurement management [17], so he or she is the most responsible person for project success.

With this in mind, it is surely possible to broaden "iron triangle" model on models that anticipate management of stakeholders' satisfaction [18, 19], benefits to organization that owns the project [16, 18, 20] and long-term impacts on project environment [21].

How to measure if project management is successful? Project management success can be evaluated through already mentioned criteria of time, cost, quality, scope, resource and activity [22], but also through models of measuring success like PMPA – *Project Management Performance Assessment* [23] or maturity models of management within organization like *Project Excellence Model*® [24]. It is hard to answer the question of project management success evaluation precisely, because project management creates both tangible and intangible benefits [25].

As stated earlier, it may be possible for a right project to succeed without successful project management, but successful project management can boost up its success. There is a significant positive relationship between project management practices and project success [4, 26, 27]. Project management success is one of the elements of project success, because the latter is hardly achievable without it [28].

3. Project management success breakdown

In addition to thoughts given in previous chapter it is interesting to take a look at those project management parts which contribute the most, both to project management success and, consequently, to overall project success. Those parts are named project management success factors – enablers or influencers of project management success.

In table 1 such review is given, with authors specifying those factors.

Table 1. Project management success factors [Slightly modified from 29]

Project management success factor	Author, year	Category of project management success factors
Project manager competencies	[7, 30-32]	C1
Project managers' emotional intelligence, *soft* project manager elements	[33-35]	C1
Stuff in project team	[27, 36]	C1
Application of project management knowledge and skills from project manager and project team, as well as their coordination	[34, 35]	C1
Organizational structure	[32, 34]	C2
Organizational culture	[24, 37]	C2
Project management tools and techniques	[38, 39]	C3
Project management standards	[35, 40]	C3

Through examination of these factors, it can be seen that they can be attached to three categories, as highlighted in the third column of the table:

- Elements of project management competence (C1)
- Elements of organization (C2)
- Elements of project management methodologies, methods, tools and techniques (C3)

Regarding this categorization, slight modification of initial factors found in literature is made, based on ICB - IPMA Competence Baseline [14], OCB - IPMA Organizational Competence Baseline [41], and categorization regarding C3 found in [42] and [43]. The final result is given in figure 1.

First category, elements of project management competence, consists of technical, behavioral and contextual competencies (based on [14]) of project manager and project team members, as well as their coordination.

Second category, elements of organization, consists of organizational structure, organizational culture, organizational atmosphere and organization competence (PP&P governance, PP&P management, PP&P organizational alignment, PP&P resources, PP&P people's competences (based on [41])).

Third category consists of six parts, based on [42], and followed on by [43]: project management methodologies, project management software, project management tools, decision-making techniques, risk assessment tools and information communication technology support tools.

Theoretically, if you have a competent project manager, competent team, coordinated manager and team, adequate organizational structure, culture, atmosphere and competence, as well as high usage of project management methodologies, methods, tools and techniques, your project should have highly successful project management, and enable project success.

It is important to note here, that the importance of these factors may vary depending on project type (public or private) and project orientation (interim projects or projects for the market) and number of projects being managed in

organization. For instance, in organizations that manage many projects, organization competence becomes vital, but is not that important in organizations that are concentrated on relatively small number of parallel projects.

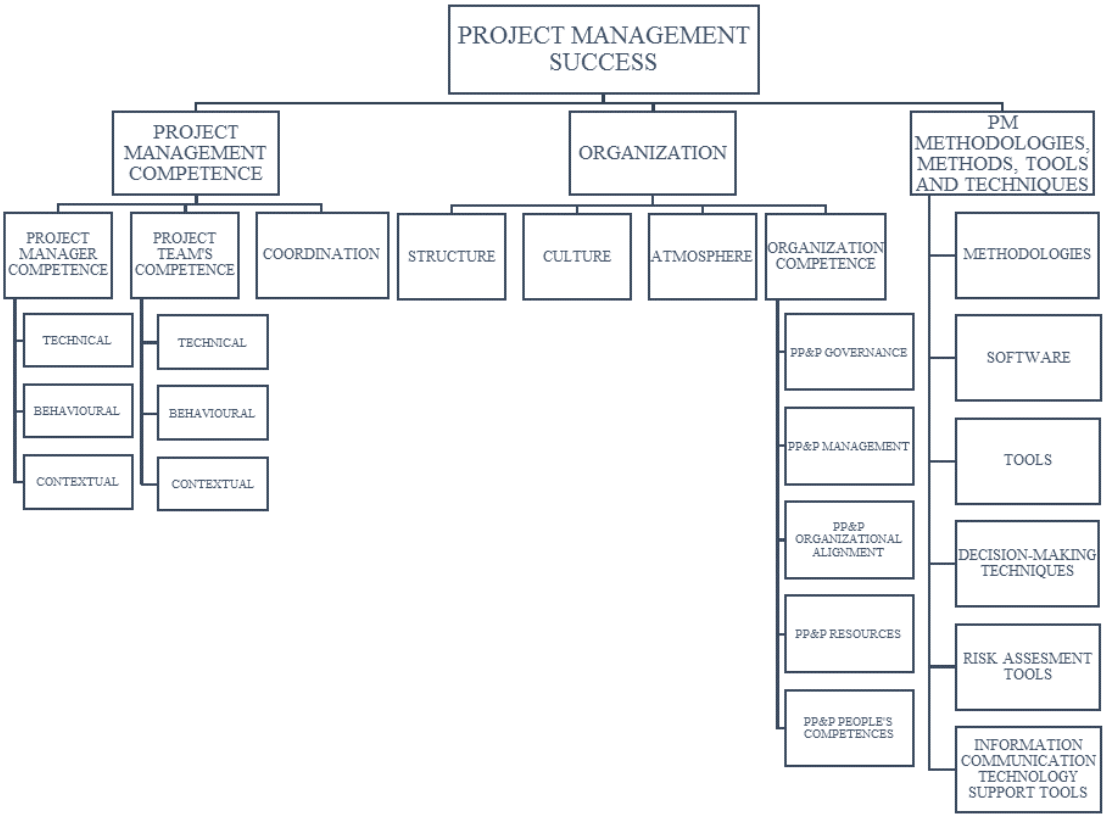

Fig. 1. Project management success factors breakdown structure

How the breakdown works on practical cases will be shown in next chapter, through three cases of EU co-financed water projects.

4. EU co-financed water projects: case study

EU co-financed water projects are public projects in the Republic of Croatia, which are being planned, selected, verified, monitored and controlled under Croatian water as Intermediate Body of Level 2. The fact that these projects are public, gives special accent on their project management. Project manager must take into consideration a larger scope of elements than time, cost and quality while taking managerial decisions – e.g. end users satisfaction, environment, health and safety, political and social implications etc.

Factors from the three categories will be tested on three case studies, whose characteristics can be seen in table 2. All of the three projects have implemented Project Implementation Units inside grant contract beneficiaries' organizations, with project manager and project management team in charge for successful implementation of project.

Project manager also exists from the point of view of Intermediate Body of Level 2, and is responsible for verification of Project Implementation Unit work. Therefore, he/she is the relevant person for assessment of project management factors on those projects. Project managers were asked to assess the strength of project management competence (on Likert scale 1-5; where 1 = insufficient competence, 2 = sufficient competence, 3 = good competence, 4 = very good competence, 5 = excellent competence) and existence of organization competence, define parent organizations' structure (functional, project or matrix), culture (clear or unclear, strong or weak, stabile or flexible, authoritative or democratic) and atmosphere (positive, neutral, negative) and name those project management methodologies, software, tools and techniques in use.

Table 2. Three project case studies

Project no.	1	2	3
Project duration (years)	3,5	4	2
Project value category (mil. EUR)	0-20	> 50	21 -50
Project scope	WWTP, Sewage system expansion and construction, Water system-house ports , Equipment, GIS system, Supervision, Visibility, PM	WWTP, Sewage system reconstruction and expansion, Water system reconstruction, Equipment, Property relations, Supervision, Visibility, PM	WWTP, Sewage system construction, expansion and reconstruction, Water system construction and expansion, Equipment, Supervision, Visibility, PM

The result of project reviews and interviews with project managers are shown in table 3.

Table 3. Results of evaluation of project management success factors

Project no.	1	2	3
Project management competence			
Project manager's competence			
Technical competence	4	4	4
Behavioral competence	4	4	2
Contextual competence	5	5	3
Project team's competence			
Technical competence	4	5	2
Behavioral competence	4	5	3
Contextual competence	4	5	3
Coordination	3	5	2
Organization			
Organizational structure	Matrix	Matrix	Matrix
Organizational culture	Unclear	Clear	Unclear
	Weak	Strong	Weak
	Stabile	Stabile	Stable
	Authoritative	Authoritative	Authoritative

Organizational atmosphere	Positive	Positive	Negative
Organization competence	Applicable, 2 parallel external projects	Not applicable, only 1 external project	Applicable
PP&P governance	✓		-
PP&P management	✓		-
PP&P organizational alignment	✓		-
PP&P resources	✓		-
PP&P people's competences	✓		-
Project management methodologies, methods, tools and techniques			
Project management methodologies	ICB	ICB	ICB
Project management software	MS Excel, Primavera	MS Excel, Primavera	MS Excel, Primavera
Project management tools	Gantt charts, S curves, PDM, EVM, WBS, OBS, Cash flow analysis, SWOT, Project chart, Resource Leveling, Reporting system, Progress reports, Progress meetings, Team building	Gantt charts, S curves, PDM, EVM, WBS, OBS, Cash flow analysis, SWOT, Project chart, Resource Leveling, Reporting system, Progress reports, Progress meetings, Team building	OBS, Cash flow analysis, SWOT, Project chart, Reporting system, Progress reports, Progress meetings
Decision-making techniques	Cost benefit analysis, Decision analysis	Cost benefit analysis, Decision analysis	Cost benefit analysis
Risk assessment tools	Life cycle cost analysis	Life cycle cost analysis	Life cycle cost analysis
Information communication technology support tools	Integrated group interface, Expert forums	Integrated group interface, Expert forums	Group interface (only e-mail)

As it can be seen from table 3, some conclusions can be drawn:

- Project managers on projects 1 and 2 are quite competent, especially in contextual sense, which is very important because these projects are EU co-financed, so there is a broader context than in nationally funded projects. Project manager of the third project is evaluated low in behavioral and contextual competence element, which can warn on potential problems in managing this project.
- Project team's competence on second project is excellent, what indicates great team composition and complementarity, which supports project manager. Team members' competence on the first project is very good, and on the third project, very low.
- Coordination between project manager and project team is extremely highly assessed on the second project, good on the first project and bad on the third one.
- All parent organizations have matrix structure, what means that some project team members work both on project and in their regular departments of functional part of organization. This structure indicates that parent organizations still want to have some sort of control over project decision-making, while keeping project management "in house".
- Previously said is visible in organizational culture, which for all three organizations is authoritative - the "last word" usually stays within organization director. Speaking of organizational culture, it is stable in sense of years and tradition on operating on one way, but is strong and clear only on the second project.
- Organizational atmosphere is negative only on the third project, which is not surprising according to the previous notions on that project.

- It is useful and purposeful to analyze organization competence only in those organizations that manage more than one project at the time, what is the case on the first and third project. All elements of organization competence do exist on the first project, but not on the third one.
- When it comes to the last category, it can be noted that first and second project are keen of usage of same project management methodologies, methods, tools and techniques. Third project, on contrary, uses only those tools that are obligatory on EU co-financed projects in water sector such as cost benefit analysis (including life cycle cost analysis, project chart, OBS and SWOT).
- To conclude, second project has the most successful project management, the average one is on the first project and the worst on the third one. After conducting these case studies, it can be seen that proposed PM success factors breakdown structure methodology coincides with current state and trends on these projects.

According to all said above, recommendations for future PM development in praxes can be made, and they consist of:

- Education. Education on PM competence and even more important – right way to use them is extremely important. Project manager with his team is the most responsible for the final project success at the end of the day. That is why it is important to promote competence, PM knowledge and best praxes. The significant part of this education should be internal organizational capacity and competence strengthening, as well as learning based on experience between organizations.
- Relationship between project and parent organization. This relationship also defines project manager responsibilities in decision-making and, consequently, liability. Due to that, it should be defined in relation to project type and project purpose. It is important to work on creation of such organizational strategic governance and project-supporting climate to give projects best organizational preconditions possible to succeed.
- PM methodologies, methods, tools and techniques. It is very useful to know large scale of these, but only in order to help, not embitter yourself. Teach, try and pick those which fit to your case the most, and which can make your life easier and your project planning, monitoring and control optimized. According to internal and mutual organizational learning mentioned before, it is useful to develop those methods, tools and techniques that can really help organization in managing their own projects.

5. Conclusion

Project management is inevitable in today's world – a place of continuous improvement through different types of various projects. Project management is not only necessity for that improvement but also one field that seeks for improvement itself, through influence on different PM success factors. Those factors are drawn up in this article, in form of project management success factors breakdown structure. The breakdown structure is then applied on three different EU co-financed projects, and relevant conclusions are made, the most important one dealing with matching between proposed breakdown structure methodology and real trends and states on the projects. Investments in project management field should be made, especially through strengthening people and organization competence.

Acknowledgements

Authors would like to thank Faculty of Civil Engineering of University of Zagreb, Alma Mater Europea ECM and Croatian waters on support and motivation of this research.

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