



**Ph.D program in
Management and
Business
Administration**

THESES OF PH.D. DISSERTATION

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The relationship between project management competence and project success in the project-intensive upstream sector of the oil industry

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Budapest, 2018

Department of Strategy and Project Management

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1. THEORETICAL STARTING POINT OF THE RESEARCH AND THE RELEVANCE OF THE TOPIC

Nowadays organisations implement more and more projects, and the so-called project intensive industries operate through projects (Project Management Institute, 2013). In the word economy 20% of the aggregated global GDP comes from project-based activities (World Bank, 2008). Both the amount of money spent on projects worldwide and the low success rate of projects (The Standish Group, 2015) underpin the relevancy of the topic. The need for more qualified project managers is constantly growing, so the topic of project management competencies has come to the centre of the interest for both the academic community and the professional associations.

Based on the review of the project management competency literature it could be seen that there is no general interpretation or consensus regarding the definition of project management competencies and the related categories in the academic sphere and among practicing project managers today. This results in situations when different phenomena is described with the same terms, or on the contrary, the same term has different interpretations, depending on the situation. Most of the contradictions were identified related to the following concepts:

- a) competence, knowledge, skill, ability, approach (Spencer and Spencer, 1993; Bloom, 1964, Finn, 1993),
- b) capability, project management knowledge areas (El-Sabaa, 2001.),
- c) project management competence and the competence of the project manager. (Crawford, 2005; Görög, 2013).

Based on the consensus of the literature review, different depth levels of the competence have been identified as the vertical dimension of the competence, while the content-knowledge aspect of the competence was interpreted as the horizontal dimension of the competence. This visual splitting gives basis for structuring project management competence theories described in the literature into an integrated model, and also provide help to clarify the different definitions and approaches regarding the project management competence.

Besides the terminological problems, the literature review also highlighted, that former researched focused mainly on the relationship between competencies and the project types and on the leadership styles aspect mostly. Until now little attention was given to the relationship between project success and project management competences. The published researches in this field have three basic limitations:

- The project success typically was identified as a homogenous phenomenon, i.e. project success was not differentiated, and no distinction was made between the different criteria dimensions of success. Project success has primarily been interpreted based on the classic project triangle, and not on the basis of an advanced, multi-level and hierarchical criteria system.
- From methodological point of view, the main deficiency of former researches was that the evaluation of the project manager's competence was mostly subjective, it was based on the self-assessment of the project managers taken into the research. One method of the multi-directional competence self-evaluation can be the document-based evaluation of the already closed projects, or the comparison of the results of the interviews of the project managers and of their leaders.
- The former researches published in the literature did not address how the organisational context affects project management competencies in the given environment and how this influences their contribution to project success.

Taking into account the roles of projects in the society and the economy (World Bank, 2008), and the low rate of successfully completed projects (The Standish Group, 2015), and the deficiencies found – and previously mentioned - in the literature, it is reasonable and relevant to conduct further research in this topic. The aims of the research (and the related research questions, and the hypotheses) were formulated by taking into account these circumstances.

2. RESEARCH AIMS AND THE RESEARCH HYPOTHESES

The primary aim of the research is to analyse the relationship between the project management competencies and the different criteria of project success. In order to reach the primary research aim, it is necessary to identify those criteria that are used in the analysed organisations to evaluate the success of the implemented projects. Based on these, as an additional research aim, those organisational circumstances which could influence the contribution of the existing project management competencies to the project success in the analysed sector also needs to be analysed. Bearing in mind the above, the following research questions have been formulated:

RQ1: Which success criteria are basically used to measure the success of projects in the given sector?

RQ2: Which are those project management competencies that contribute to achieve success in terms of different success criteria in the given sector?

RQ2A: Which are those project management competencies that contribute to the efficient completion of the projects, i.e. the success evaluated in terms of the project triangle?

RQ2B: Which are those project management competencies that contribute to achieve client satisfaction, i.e. the extent to which a completed project contributes to realize the beneficial changes implied in the underlying strategic objective?

RQ2C: Which are those project management competencies that contribute to achieve the stakeholder satisfaction, i.e. the extent to which stakeholders are ready to accept the project outcome?

RQ3: Does the organisational context have any influence on the contribution level of the existing project management competencies to achieve project success in the given sector?

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Based on the conclusions of the literature review and the research questions, the following hypothesis are formulated:

H1: The practicing project managers in the sector consider the project triangle as the most important success criterion over the effectiveness success criteria, i.e. the satisfaction of the client organisation and also over the stakeholder satisfaction.

H2: In the case of the implemented projects different project management competence areas are contributing to success measured by different success criteria in the analysed sector.

This complex hypothesis is divided into the following subhypotheses:

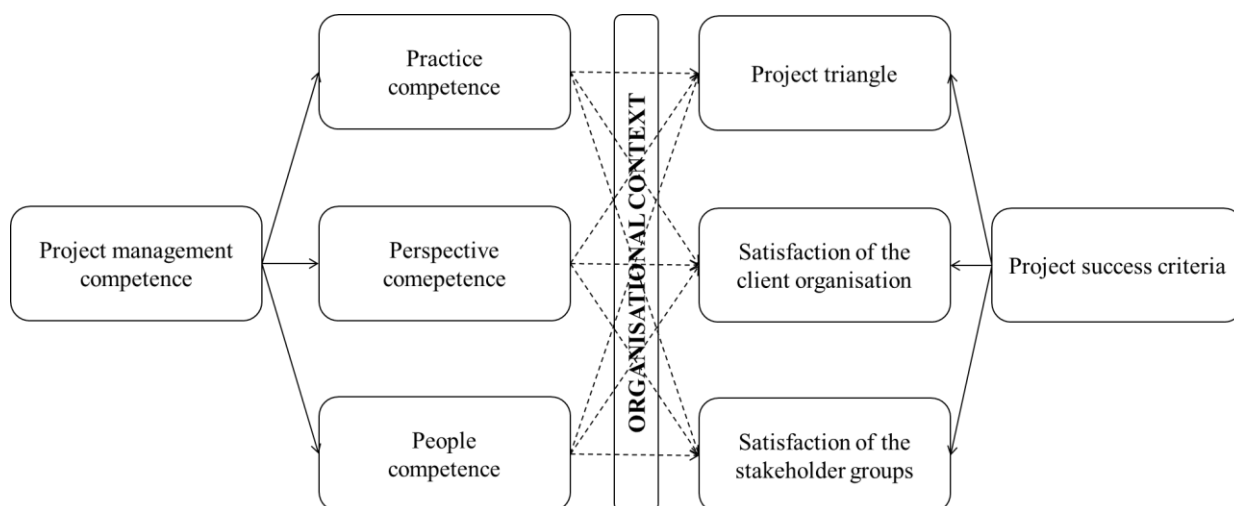
H2A: As to the project management competencies as a whole, primarily the technical capabilities, or in other words. the *practical* competencies contribute to the efficient completion of a project, i.e. the success measured against the project triangle;

H2B: As to the project management competencies as a whole, primarily the conceptual capabilities, or in other words, the *perspective* competencies contribute to achieving the beneficial changes implied in the underlying strategic objective.

H2C: As to the project management competencies as a whole, primarily the human abilities, or in other words, (*human*) competencies contribute to the success measured against the stakeholder satisfaction.

H3: The organisational context influences how the existing project management competencies could manifest themselves from the point of view of achieving project success in the given sector.

Bearing in mind the introduced research aims and the formulated hypotheses the following research model was constructed.



1. figure. The research model

3. RESEARCH METHDOLOGY

Bearing in mind the formulated research questions and the associated hypotheses the appropriate approach is the use of explorative research and the mixed research method (Creswell & Clark, 2006) in order to justify the statements inlied in the hipotheses. *Sogunro* (1997) also suggest using mixed methodology, that is the combined use of questionnaire and interview, documentum analysis and direct observation in order to reliably map management competencies. The research implies the following steps: (1) preparation for the empirical research, which consists of (1a) a workshop devoted to introducing the importance of the research, (1b) testing the self- assesment questionnairy, test interviews; (2) data collection: (2a) multilevel competency self- assesment, (2b) semi-structured interviews, (2c) documentum analysis; (3) both data and methodology triangulation; (4) analysis and evaluation of the empirical information (5) formulating research results és corroborating research outcomes; (6) justifying/falsifying research hypotheses.

Before commencing the empirical research a workshop was organised to introduce the aims of the research for the informants (Corbin és Morse, 2003). This was followed by testing the

self assessment questionnaire and test interviews. Based the experiences gained from this test the self-assessment methods and the related self-assessment form and the interview questions were further refined. The latest issue of International Project Management Associations (IPMA) Individual Competence Baseline (ICB v 4.0) (IPMA, 2015) was used for evaluating project management competencies of the participants. Completing the multilevel self-assessment questionnaire under the supervision of the researcher took 120 to 150 minutes. It was followed by a semi-structured interview with project managers which took 60 to 90 minutes (Creswell, 2003). This research is followed by the document analysis related to the completed projects managed by the research informant. Triangulation has an outstanding role in a qualitative research to validate information (Denzin 1978, 1988; Bowen, 2009; Cohen & Manion, 2000; Altrichter et al. 2008; Szokolszky, 2004). In this research both data and methodology triangulation were used in parallel. As to data triangulation, information elicited for project managers was triangulated by means of interviews with those line managers who supervise the project managers participated in the research. Also for triangulation of the information interviews were conducted with the staff members of the project support office and a few top managers as well.

Evaluation of the empirical data regarding the self-assessment completed by the project managers was based on Key Performance Indicators and the associated measurements of competency elements introduced in IPMA ICB. The contribution of the different competency elements to achieving success in terms of different success criteria was evaluated by means of the level of agreement calculated from the information elicited from the participants. The level of agreement, in terms of percentage, expresses the extent to which informants agreed on the importance of a certain competency element in achieving success in terms of a certain success criterion (Görög, 2016). Research outcomes filtered from the empirical research need to be corroborated (Plutchik, R., 1983; Putnam, H. 1991), in order to achieve reliable generalization of the research results. In order to achieve this aim a closing workshop was organised in which the whole research (not only the research sample) population, and also the line managers, the members of the project support office and the top management were involved. Following corroboration of the research outcomes, justification/falsification of the research outcomes came to the forefront.

The empirical research was planned to be implemented in a project-intensive industry (Projekt Management Institute, 2013), in which a broad spectrum of projects could be found.

The energy (the oil- and gas) industry - as a classical project intensive sector - was selected, which considered to be ideal to the project management competence research. The research was conducted at a Hungarian, multinational company group's headquarter and at those of its subsidiary companies which are active in production currently. The company is operating in the oil and the gas industry. Because of the complexity, size and geographical diversity of upstream sector these organisations involved in the research implement a wide variety of knowledge intensive projects such as real estate development, IT/IS projects, organisational development projects, R&D projects. The average number of projects in these organisations is as many as 350 to 400 per year.

The population includes project managers (98 people) working for the analysed companies. The population was determined based on a multidimensional analysis. In the research sample altogether 25 project managers were selected randomly from the organisations, which comes out at 25,5% of the whole population, so considering the sample size the representativity of the research is confirmed within the organisational group.

4. RESULTS OF THE DISSERTATION

4.1. Evaluating project success in the upstream sector

This question was analysed from various aspects during the research. During the semi-structured interviews project managers ranked the importance of the success criteria within the sector. After that the project closing documents, presented by the project managers, were analysed. During the self-assessment project managers determined the importance of the competences and reported about their current and future level competence. Besides these, interviews with the project managers' line managers, with five project office employees, and with one top manager who was responsible for projects were conducted to triangulate the data collected before.

At the beginning of the interviews it became obvious that project managers have limited knowledge about the two success criteria beyond the project triangle. After the clarification of the definitions, the majority (92%) of the project managers mentioned the project triangle based success evaluation as number one priority at their organisation. They put in second rank the strategic fitting of the project, i.e. success criteria based on client satisfaction. On the last place came the success based on the stakeholder satisfaction.

The document analysis underlined that the success of the projects is evaluated against the time and cost and quality constraints, i.e. the project triangle. In case of exploration and production

projects meeting the HSE (*health, safety and environment*) criteria is of high importance, so considering this, it could be said that the stakeholder satisfaction based success criteria is also important.

It is worth controlling the consistency of the project managers' answers. Based on the aggregated self-evaluation results, and the competence field's importance order set up during the interviews, the most important competence field for the project managers are the people competence area. Second most important are the practical competencies, and there is the perspective competence on the third place. This result is equal with the results of self-evaluations: 1. people, 2. practice, 3. perspective.

The most important human competencies, in their interpretation, basically contribute to the success based on the stakeholder needs (this will be presented in more details in the next chapter). Contradicts to this, that the stakeholder satisfaction success criteria is the less important success criteria for the project managers. So, the most important competence elements contribute to the less important success criteria. The three elements of the project triangle (project result, time, finance) are somewhere on the first five most significant places on the competence list made up during self evaluation, so, not in the aggregated results, but in the sequence of the competence elements the classic project triangle project success interpretation is present.

In resolving the contradiction regarding the importance of human competencies, in this phase of the research, the usage of data and methodology triangulation had a dominant role, it was information gathering for the same subject from more sources and methods. It was confirmed during the interviews with line managers, five employees of the project office, and the top manager that project success is basically evaluated on time and cost-based delivery in the organisational group. At the same time, based on the interviews, the contradiction can be released why is still the most important competence the stakeholder satisfaction related human competence. In the past years, to inspire the managers, lots of human competence development trainings were organised for them withing the organisation group. These trainings put strong emphasis on the issue of human competencies, this can explain why the project managers highlighted these regarding importance, as well as a field to be developed.

Generalist and specialist project managers

Focusing on the topic of competency and considering the sectoral specialities, it is inevitable to analyse the educational background of project managers. 80% of the sample

project managers graduated as engineers, geologists or geophysicists and only 20% are economists, and only 16% has some kind of project management qualification. Many respondents claimed that they *“became project managers accidentally”*, because their previous line activities are realised now in the form of projects. In this sector many employees became project managers this way, but basically, they look at themselves as an experts of their field. It is important to analyse, whether the respondents consider the specialist project manager (with more context competence, and with deeper professional knowledge on the content of the project result) or the generalist project manager (who are stronger in the practical competencies, i.e. competencies referring to classic project management tools) more successful. Surprisingly, 67% of the respondents consider the generalist project managers to be more successful and only 33% selected the specialists. This could be explained with the fact, that the responders are more uncertain in competencies regarding the practical competence fields (related to the classic project management toolbox), so they assumed that the other type of project manager should be more successful. It was evidenced, that the organisation evaluates project success basically on the criteria of efficiency not effectiveness, this also underlines, that the generalist project managers, with strong practical competencies were perceived as more successful.

4.2. The contribution of the project management competence areas to the success measured by different success criteria

Most of the responders concluded that the elements of the context competence area checked the primary contribute mainly to the client satisfaction success criteria. In their interpretation, knowledge about the organisational, operational and industrial environment of the projects contributes mainly to the strategic acceptance of the project. Seven competencies out of ten human competencies were related to the success achieved based on the stakeholder satisfaction. Elements of the practice competence area, 11 out of 13, contribute to the success defined by project efficiency, so according to the respondents the classic project management toolbox competencies are related mostly to the project triangle success criteria.

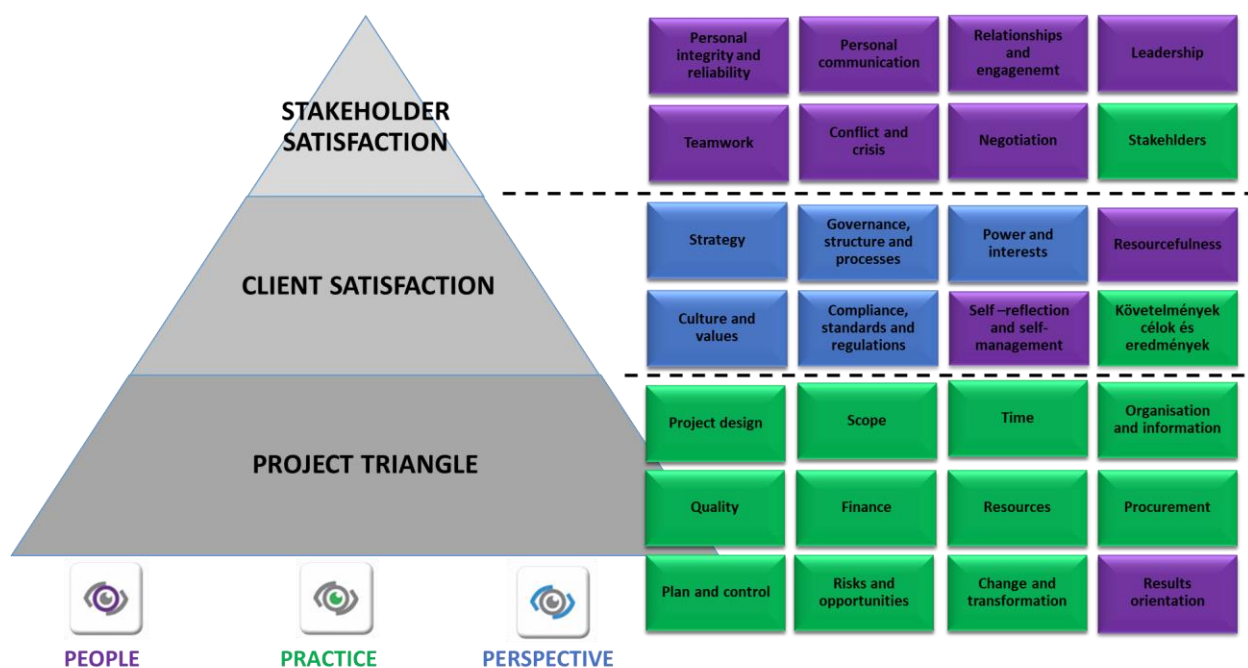
Only one classic practice project management competency was allocated to the stakeholder satisfaction success criterion, it was the stakeholder competence. This is not at all surprising regarding its content.

According to responders reaching the success measured against client satisfaction success criterion is helped by the self-reflection and self-management human competence. In

their opinion, that project manager, who is strong in this competence, is able to get his projects across to the organisational management. 40% of the responders underlined the importance of resourcefulness human competence in achieving success measured against the classic project triangle, and 44% of the respondents mentioned it as a contribution to client satisfaction success criterion. Based on the interviews, it could be seen that there are two interpretations of resourcefulness: on one hand, it is seen as the competence in not routinely solving the problems related to professional context of the project and in gaining access to the scarce resources, on the other hand it is the creativity to get the projects accepted. The requirements, goals and results practical competence, because of the knowledge of the goals serving the basis of the project, also contributes to the client satisfaction success criteria.

Only one human competence, the results orientation, was mentioned to contribute mainly to the effectiveness of the project, i.e. the success measured against the project triangle.

At the beginning of the semi-structured interviews with project managers it was useful to clarify the meaning of the different success criteria, because respondents had limited knowledge about the multilevel success criteria concept and considered project triangle as the only success criterion before. Even, when dealing with competences that were not related to the project triangle success based on their answers, they often add that indirectly there is correlation between each competence and the efficiency based success.



2. figure. The competency elements and the success criteria

Based on the answers, relationship could be identified between the different project management competence areas and the different project success criteria based success, such as:

- most elements of the people competence area primarily contribute to the stakeholder satisfaction success criteria based interpretation of project success;
- most of the elements of the practical competence area primarily contribute to the project triangle success criteria based interpretation of project success;
- most of the elements of the perspective competence area primarily contribute to the client satisfaction criteria based interpretation of project success.

4.3. The impact of the organisational context on the project management competencies' contribution to project success

Based on project managers' answers four important organisational constraints were identified, which influence the project management competencies' contribution to the project success, i.e. to what extent can an existing competence contribute to the achievement of the project success. The related results will be introduced based on the four organisational constraints.

4.3.1. Human resources scarcity

Every respondent, the whole sample size, mentioned one specific organisational constraint, which is crucial in achieving the success of the projects. That is the number of the key human resources, who are necessary to carry out the project activities. The number of these experts are very limited within the organisational group, so in case of multiple parallel projects, the project managers often face the lack the important expertise, so despite of their own existing resource management competencies budget and time overflow would occur in their projects. Most of the respondents mentioned three competence elements (one from people, one from perspective, and one from the practical competence area) that are able to partially compensate the effect of this organisational constraint. These are as follows: relations and engagement (mentioned by 21); power and interest (mentioned by 15) and the stakeholder competencies (mentioned by 10). These are those competencies, which help the project manager to represent the interests of his own projects in the "battle" for scarce resources.

4.3.2. Lack of line authority over the project team

Due to the fact, that the organisational group basically implement its projects in a weak matrix project organisational arrangement, i.e. the authority over the members of the project team belong to a line manager, as a result the classical leadership competence can be applied with limitations, especially in those situations, when the project tasks and the daily line tasks conflict. This organisational constraint could be identified in every organisation, which implements its projects in linear-functional or weak matrix project organisational arrangement. Based on the respondents' answers three people competence elements could resolve the block of the leadership competence, these are: the personal communication (mentioned by 23), teamwork (mentioned by 21) and negotiation (mentioned by 18). The first is one of the most important project management competence elements, the second contributes to the efficient management of the project team's work, and the third helps to resolve the organisational constraint by helping the communication about the human resources with the line manager.

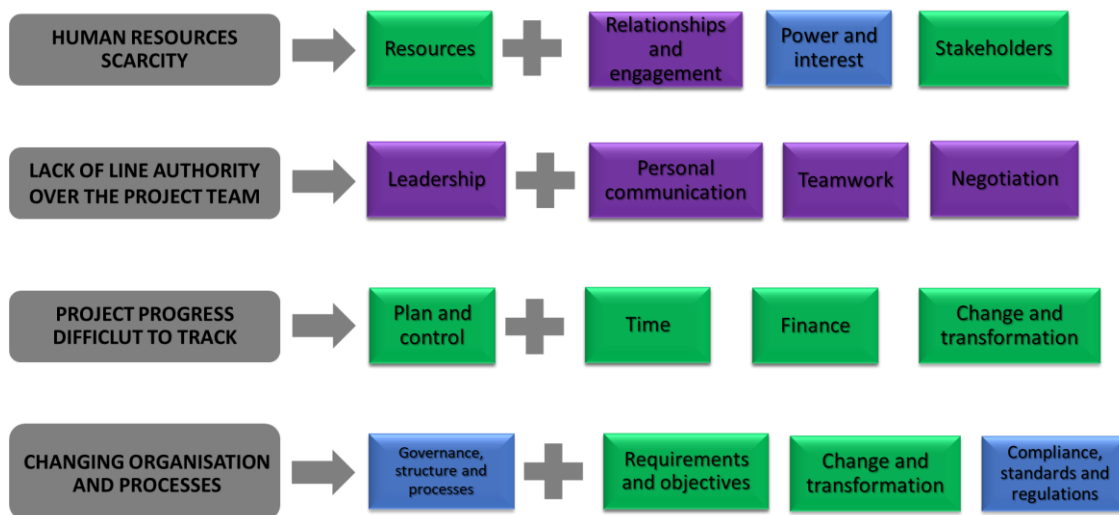
4.3.3. Difficulties to track the project progress

76 % of the project managers involved in the research (19 managers) confirmed, that they face problems during the accomplishment of the planning and even during the project control phase, because they do not have direct access to the systems that register the actual projects spending, so the real cost reports arrive (often late) from the finance department. Because the financial and project clearing systems are not integrated in the organisational group, the accomplishment of the project control is highly dependent on another organisational unit. Some respondents – 17 and 16 project managers – appointed the time and finance competences could compensate this situation. A precise time and cost plan can help in monitoring the spendings of the project, and it could be the resolution of the above situation. 15 project managers underlined that the change and transformation (practical) competence could also be important in managing the frequent changes, such as the managing the acceptance process of the project deadline or budget extension.

4.3.4. Changing organisation and processes

The organisational changes, and the related transforming processes, the changing templates make it difficult to reach the project triangle based success within the organisation group as well as the client satisfaction based project success. 18 of the 25 project managers had difficulties in understanding the complex environment of the projects, their embeddedness in the strategic and organisational context, the related governance. The governance, structural and process competency is blocked by this constraint, which can also

lead to time and budget overflow of the projects. In this situation, that project manager is considered successful, who can precisely define the requirements, objectives (mentioned by 16), and those who have good change and transformation competencies (mentioned by 15) and are well-informed in the legal and regulatory environment issues, which is covered by the compliance, standards and regulations perspective competence element (mentioned by 15).



3. figure. Organisational constraints

Based on the above, it can be concluded, that the contribution of the project management competencies to the project success could be affected by the organisational context. During the self-assessment respondents evaluated their current competence level – regarding the competence elements identified as mostly affected elements by the organisational constraints- as follows: leadership (9. place); company governance, structure and processes (12. place), planning and control (16. place) and resources (21. place). These competencies are ranked in the middle section in the self-assessment, which means that the project managers current competency level – based on their own evaluation - is satisfactory in these competencies. Bearing this in mind, we could not assume, that the lack of competencies caused the lower level of performance in the above-mentioned cases, but the organisational constraints. This conclusion can be important for the client organisations. In case of lower project management achievement organisations should consider whether it is coming from organisational constraints or it is caused by the lack of project management competence before they organise competence development programs. If the problem is caused by organisational constraints the competence development training could be inefficient and waste of money and time. Thinking this further, these organisational constraints can lead to the project managers' frustration, to the feeling, that despite of their existing or developing

competence they cannot achieve project success. This could be a possible explanation of the project managers' high fluctuation, and it could explain why are relatively so many young and unexperienced project managers within the organisation group.

The respondents mentioned only organisational constraints during the interviews, but it could be assumed, that enforcing factors also exist. During this research such organisational factors were not discovered, so it could be discussed in a future research focusing on that special topic.

The results highlighted that despite of the organisational constraints, the existing competencies altogether could "compensate" these situations. Although it was not the primary objective of this research, and related hypothesis was not determined in the dissertation, but the results of the research explored the interrelationship between the project management competencies. The basic relation between the competence elements are shown on the right side of the 22. figure, for example the coexistence and the interrelationship between relationships and engagement (people), the power and interest (perspective) and the stakeholder (practical) competence elements could ease the access the limited human resources. There could be cases when competence elements belonging to different competence areas are affecting or when the joint effect of different competence elements from the same competence could compensate the blocking of an other competence element. More specific aspects of the competence element interrelationships could be revealed in a future research.

5. CONCLUSION AND SUMMARY

- Based on the outcome of analysing the information collected in the course of the research it might be stated that project managers acting in the upstream sector of the group primarily consider project success in line with efficiency criteria, i.e. the project triangle. In this way the statement implied in H1 hypothesis is considered to be a true statement, consequently the following thesis might be formulated:

T1: The practicing project managers in the sector consider the project triangle as the most important success criterion over the effectiveness success criteria, i.e. the satisfaction of the client organisation and also over the stakeholder satisfaction.

- Based on the outcome of analysing the information collected in the course of the research it might be stated that 80% of the (11 out of 13) practice competencies contributes to achieving project success in terms of the project triangle. In this way the statement implied in H2A hypothesis is considered to be a true statement, consequently the following thesis might be formulated:

T2A: As to the project management competencies as a whole, primarily the technical capabilities, or in other words, the practical competencies contribute to the efficient completion of a project, i.e. the success measured against the project triangle.

- Based on the outcome of analysing the information collected in the course of the research it might be stated that each of the five perspective competence elements unanimously contribute to achieving success in terms of client satisfaction, i. e. the extent to which the completed project outcome contributes to achieving the underlying strategic objective. Thus, the statement implied in H2B hypothesis is considered to be a true statement, consequently the following thesis might be formulated:

T2B: As to the project management competencies as a whole, primarily the conceptual capabilities, or in other words, the perspective competencies contribute to achieving the beneficial changes implied in the underlying strategic objective.

- Based on the outcome of analysing the information collected in the course of the research it might be stated that 70 % (7 out of 10) of the human competence elements contributes to achieving success in terms of stakeholder satisfaction. Thus, the statement implied in H2B hypothesis is considered to be a true statement, consequently the following thesis might be formulated:

T2C: As to the project management competencies as a whole, primarily the human abilities, or in other words, human competencies contribute to the success measured against the stakeholder satisfaction.

Bearing in mind the statements implied T2A, T2B and T2C, it might be stated that H2 hypotheses could be considered to be a justified statement, thus the following thesis could be formulated:

T2: In the case of the implemented projects different project management competence areas are contributing to success measured by different success criteria in the analysed sector.

- Based on the outcome of analysing the information collected in the course of the research it might be stated that the identified organisational features have an impact on the contribution level of the existing project management competencies to achieve project success in the given sector. Thus, the statement implied in H3 hypothesis is considered to be a true statement, consequently the following thesis might be formulated:

T3: The organisational context influences how the existing project management competencies could manifest themselves from the point of view of achieving project success in the given sector.

The research methodology deployed in this research has turn to be appropriate from the point of view of achieving the research aim, since (1) the variety of collecting information made it possible to conduct a multidimensional analysis; (2) the use of data and methodology triangulation resulted in more reliable information; (3) the use of corroboration resulted in the a more reliable generealization of the research outcomes; (4) due to the reliable generalization the hypotheses could be unanimously justified. Bearing in mind the research outcomes it could be stated that the predefined research aim is achieved, and these research outcomes implies practical implications for the company group that provided an organisational context for this reseach.

(1) The research highlighted that project success is primarily evaluated against the project triangle within the company group. However, there are signs predicting the openness of the top management for considering the importance of human competence area besides the practical competence area. The increasing number of human competence development programs initiated by the top management clearly shows this likely future trend.

The research outcomes, at the same time, imply managerial, i.e. practical implications for the organisations as well, which are as follows:

- The company group should consider evaluating their projects not only against the project triangle, but against other success criteria as well. The new criteria should have an effect on the project evaluation processes, on the project documentation, besides the evaluation of the project managers (key performance indicators) should be modified based on them.
- The sample selection highlighted that there is no consensus about the project manager profession (position as a job) within the company group. It should be clarified who considers to be a project manager within the group, because currently project managers could be determined by various aspects.
- In case of the specialist project managers the professional identity should be strengthen and consider their special situation in case of professional training programmes.
- Because of the low level of project management qualification (only 16% of the sample has a professional project management qualification), it could be beneficiary for the organisation group to encourage and support project managers to gain these certifications.



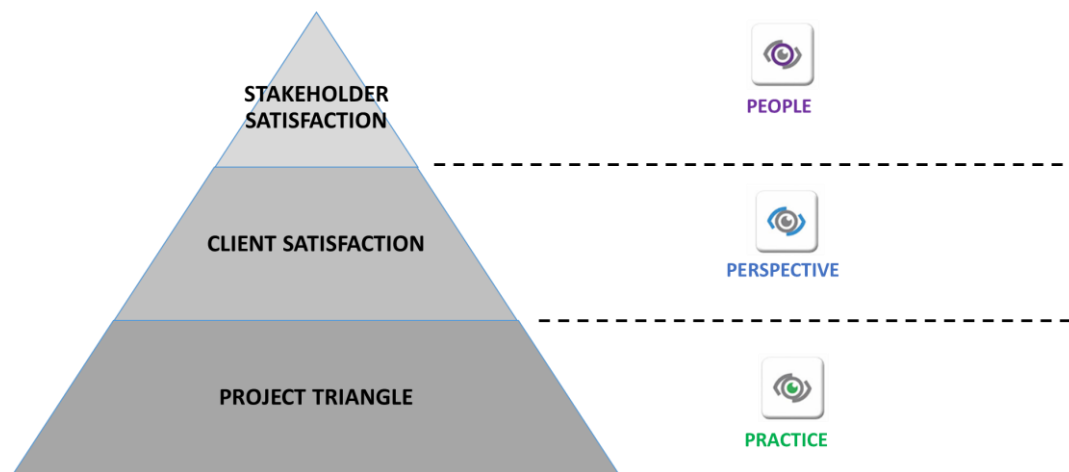
4. figure. The ranking of success criteria within the organisation group

(2) The explorative, qualitative research revealed the relationship between the competence areas and the success criteria. The competence elements of the practice competence area primarily contribute to the success achieved in terms of the project triangle, while the elements of the perspective competence area contribute to the success achieved in terms of the client

satisfaction, and the human competence area contributes to the success achieved in terms of the satisfaction of the stakeholder groups. The research also highlighted the role of self-reflection, self-management and resourcefulness competencies to get the project across to the organisational project acceptance processes and ease the client acceptance and contribute to the client satisfaction.

The research outcomes, at the same time, imply managerial, i.e. practical implications for the organisations as well, which are as follows:

- If the organisation group plans to evaluate the project success achieved mainly against the project triangle in the future, it should focus mainly on the development of the practice competence area.
- If the organisation would like to evaluate its projects not only against the classical project triangle but against other criteria as well (like client satisfaction or stakeholder satisfaction) in the future, in this case the revealed relationship between the competence areas and the different success criteria could provide a great starting point of elaborating a new success evaluation system and it could also help in planning the training and competence development programmes for project managers.



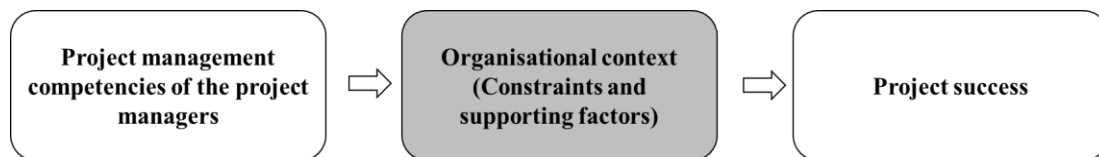
5. figure. Relationship between the project management competence areas and the project success criteria

(3) The research also revealed that the organisational context influences the project management competencies' contribution to achieving project success because the organisational constraints could block the competencies contribution to the successful workplace performance. The result also highlighted that other competencies could compensate this negative effect. The understanding further aspects of the relationship

between the project management competencies and the features of the organisational context could be the primary aim of a future research, which could reveal the details of this topic.

The research outcomes, at the same time, imply managerial, i.e. practical implications for the organisations as well, which are as follows:

- Not necessarily the lack of the project management competence is the reason of the underperformance and the project failures within the organisation group.
- Organisations should put a bigger emphasis on mapping and revealing the organisational constraints and resolve them.
- During the planning phase of the competency development programs it should be mapped which are root causes of the underperformance/project failure, because both organisational constraints and also the lack of competence could cause them. If it is coming from constraints, the organisation should resolve that problem and it should not invest into competency development programs.



6. figure. The organisational context's effect on the project management competencies' contribution to the project success

As to the generalisation of the research outcome, it might be remarked that the entire research was implemented within one sector (upstream) of company group (headquarter and six subsidiaries) which operate globally. However, the complexity of the core activity within the upstream sector, and at the same time the multivariety of the initiated and completed projects and the high number of simultanously completed projects provide a reliable basis for generalizing the reserch outcomes reliably. In this way, these results could be utilized in other sectors of the gas and oil industry, and these potential practical implications could be beneficial for other companies operating in other project-intensive industries as well.

At the same time, the success of PhD theses relied on one-company based research in the management domain (Gelei, 2002; Toarniczky, 2012) justifies the appropriateness of those reserches which are one company or one company group in case of a qualitative research. Unlike to quantitative researches, where the size of the samle and the associated statistical analysis could be decisive as to the reliability of the research outcomes, the reliability of the

qualitative research primarily relies on the appropriateness of the case company (*Bokor, 1999*).

The research outcomes at the same time imply potentials for further research. The primary aim of this research was to reveal the fundamental relationship between competency elements and success criteria. Besides this, the research pointed out some organisational constraints regarding the manifestation of existing project management competencies, however, further research might focus on revealing those organisational features that could support those project management competencies to achieve success against each success criteria. At the same time, a research focusing on the likely relationship between competency elements could result in a more sophisticated research outcome. The relationship between project types and competencies, and also the assumed correlation between the competencies and the cultural aspects of the project managers were out of scope of this research, although these topics could be considered to be aims of further researches as well.

In sum, it might be concluded that the outcomes of this dissertation could serve as a starting point for a few new further researches related to the topic of project management competence. These future researches could highlight further aspects of this topic, which could contribute to the development of the project management academic literature and the profession itself.

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