Abstract: Purpose – the aim of this paper was to present advancements in the field of Project Management Maturity and highlight the potential benefits of conducting such diagnostics. Design/Methodology/Approach – first the article presents a summary of the literature review, introducing the concept of Project Management Maturity and describing the most popular models available in the field. The author also provides the results of a research conducted in a leading Polish energy player, using a case study method with individual in-depth interviews as the main data gathering technique. Findings – the study suggests that Project Management Maturity assessment can lead to multiple meaningful insights when conducted in a business. This could lead to significant efficiency improvements to the Project Management function within the company. Originality of the research – the article offers an insightful summary of a diagnosis conducted in a large energy player, presenting a brief description of the internal organization of the Project Management function. The results are useful for scholars and professionals who are interested in the topic of Project Management Maturity assessments, and would like to appreciate insights generated by the study.

Keywords: Project Management Maturity, Project Management in energy sector, evaluation model, project maturity.

1. Introduction

The field of project management, both the science itself and its professionals, shows continuous interest in its possible improvement. Professionals want to deliver projects faster, with fewer resources and to avoid changes of project scope. They want to make project success repeatable. Such motivation paved the way for the development of the concept of Project Management Maturity. The term of maturity in the projects was first used around 1998. According to Friendrich, Schichter and Haeck in their History of OPM3, the first model – the Organizational Project Management Maturity Model (OPM3) – was created in a process that aimed to develop a standard for industry and government to assess and develop the capabilities needed for the improvement of Project Management as well as to achieve organizational strategies through projects. This standard enabled organizations to see and aim for excellence in the field, and also enabled them to
judge their current situation, and streamlined the process of searching for possibilities of improvement.

The main goal of the study was to present the possibilities of the model, showing the need for triangulation and drawing first conclusions about the maturity level of the studied company. The article gives an initial perspective of the term and aims to create interest in the further study of Project Management Maturity Models.

The study follows a case study research design (Eriksson and Kovalainen, 2016; Yin, 2009), presenting the results of research carried out in a large energy player in Poland. It highlights the potential benefits of the Project Management Maturity diagnosis and provides a perspective on vertical misalignment occurring in the department.

The results of the study demonstrate how maturity assessment can lead to meaningful diagnosing of the Project Management function in a company, it also indicates the need for triangulation during the assessment.

The article is composed of a theoretical background section with an explanation of the purpose of a Project Management Maturity assessment and a description of the most popular available models. Next, the methodological section presents the case study design, research process and constraints.

The results allow for conclusions drawn from the overall and question-level analysis of insights gathered during the assessment.

2. Theoretical background

2.1. The concept and purpose of project management maturity

The term of project management maturity describes an organization’s development in the field of project management, its methodologies, systems and tools (Iqbal, 2012), in other words, the effectiveness of project management inside a given company. All major models enable companies to recognise their development stage based on the concept of levels – the number of which may vary between the models. The level is diagnosed during an assessment, which takes the form of a questionnaire conducted with project managers within the company (Kerzner, 2019). The insights taken from establishing the company’s maturity level enable to understand:

- the current stage of knowledge and skills,
- the information baseline for potential development.

Project management maturity levels will vary for each organization, the level depends on the company’s goals, needs, resources and strategy. The average level can also vary between localities and/or industries.

Kerzner defined the need for project management maturity, as follows: “the purpose of the PMMM is to assess the execution of the delivery system, seek out areas for improvement, establish a continuous improvement baseline, and then
reassess performance periodically to see if continuous improvements were implemented. The results of the PMMM (project management maturity models) study could indicate changes that need to be made to project management processes as well as changes needed in the company’s infrastructure” (Kerzner, 2019). The study additionally elaborated on the project deliverables, explaining that the purpose of PMMM is also to improve the outcomes of project management. The topic was also studied by many other scholars, including Crawford (2021), Kwak and Ibbs (Kwak and Ibbs 2002), also Holmes and Walsh (Holmes and Walsh, 2005). Thus, typical performance maturity earnings include adequate metrics to cover this specific purpose.

2.2. Overview of different Project Management Maturity models

General organization’s maturity and especially the Project Management Maturity (PMM) concept has achieved unquestioned success and is both conducted and appreciated by numerous market players. The list below includes the most popular models that are commonly used for diagnostic Project Management Maturity (Iqbal, 2012):

1. Project Management Maturity Model (PMMM or KPM3) by Harold Kerzner, IIL.
2. Project Management Maturity Model (PMMM) by Jim K. Crawford.
3. Berkeley Project Management Process Maturity Model PMPM or (PM)2 by Young Hoon Kwak and C. William Ibbs.
4. Organizational Project Management Maturity Model (OPM3) by PMI.
5. PRINCE2 Maturity Model by OGC, UK.
6. Portfolio, Programme, and Project Management Maturity Model (P3M3) by OGC, UK.
8. Cultural Project Management Effectiveness Model (CPMEM) by PMGS.
9. IMSI Project Management Assessment Model by Steve J. Holmes and Robert T. Walsh.

These nine models are the most popular available, related to project management. They all have differentiating factors, their aspects state a crucial factor when it comes to making a decision about which assessment to utilize in the company. A visual comparison of five models (OPM3, P3M3, Prince, Kerzner and Berkeley) is shown in Table 1.

The authors state that: “OPM3 is the more suitable maturity model than others in terms of the selected variables” (Khoshgoftar and Osman, 2009). Additionally, they provide reasons for such a statement, emphasizing the following factors: referring to standard, considering strategic/portfolio/program/project management, large number of best practices and capabilities, publisher’s name and support, ease of use, low cost, and industry agnosticism.
Table 1. Comparison of Project Management Maturity Models

<table>
<thead>
<tr>
<th>Sub-Criterion</th>
<th>OPM3</th>
<th>P3M3</th>
<th>Prince</th>
<th>Kerzner</th>
<th>Barkeley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publisher</td>
<td>PMRI</td>
<td>PMG</td>
<td>PMG</td>
<td>PMG</td>
<td>PMG</td>
</tr>
<tr>
<td>Scope</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
</tr>
<tr>
<td>Number of Maturity Level</td>
<td>------</td>
<td>1-5</td>
<td>1-3</td>
<td>1-5</td>
<td>1-5</td>
</tr>
<tr>
<td>Discrete/Continues</td>
<td>Continues</td>
<td>Discrete</td>
<td>Discrete</td>
<td>Discrete</td>
<td>Discrete</td>
</tr>
<tr>
<td>Details of considered factors</td>
<td>Extremely High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Referred Standard</td>
<td>PMBOK</td>
<td>MSP</td>
<td>Prince</td>
<td>PMBOK</td>
<td>PMBOK</td>
</tr>
<tr>
<td>Definition of maturity</td>
<td>Yes</td>
<td>Yes</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Considering the organization strategic</td>
<td>Yes</td>
<td>Yes</td>
<td>Medium</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Project Management Process</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Program Management Process</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Portfolio Management Process</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Coverage of the model</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Assessment Difficulty</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Assessment Cost</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Quantitative Results</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tangible Results</td>
<td>Yes</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Identifying weakness and strong points</td>
<td>Yes</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Continuous assessment</td>
<td>Yes</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>Training Difficulty</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Commitment for Continuous Improvement</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Suggestion of alternative for improvement</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Unknown</td>
</tr>
<tr>
<td>Priority of Improvement</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Unknown</td>
</tr>
<tr>
<td>Support by Publisher</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Compatibility with new conditions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Unknown</td>
</tr>
<tr>
<td>Ease of Execution</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Simple and Understandable</td>
<td>Yes</td>
<td>Medium</td>
<td>Medium</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: (Khoshgoftar and Osman, 2009).

Having summarized the details, there are two models which first should be closely investigated with Project Management Maturity Models, namely OPM3, and Kerzner’s, owing to industry agnosticism, low cost, and ease of assessment-conducting. Hence, the models have achieved high recognition and wide business application. Additionally, both the OPM3 and KPMM models continue to be a topic of interest for researches.
2.3. Organizational Project Management Maturity Model

The Organizational Project Management Maturity Model or OPM3 was first published in 2003. The model was developed by the Project Management Institute. The model utilizes two standards published by PMI – PMBOK® as a standard for project management, and PMCDF as a standard for the training and development of project managers.

The model consists of three components (PMI, 2003):
- Knowledge, which includes best practices based on PMBOK® Guide.
- Assessment, comparing best practices with the current maturity stage of the company. In the model there are 537 best practices, each made of at least two capabilities – which are translated into KPI that can be measured in the company.
- Further Improvement, implementing improvement measures and returning to the assessment phase.

OPM3 Assessment is organized according to the following processes (PMI, 2003):
- Project Management Process.
- Project Programme Process.
- Project Portfolio Process.

Even though the model is wider in scope and covers Programme and Portfolio Management, this article’s interest is only in the Project Management module.

The model is not divided into levels, but into four continues stages, namely (PMI, 2003):
- standardize,
- measure,
- control,
- continuously improve.

OPM3, instead of levels, shows maturity in a matrix with various stages. “Best Practices were organized in a manner that the average organization would understand more readily. First, it was determined that there were high-level (Portfolio) processes, multi-project (Program) processes and Project processes. Subsequently, it was decided to use PMBOK® Guide’s project management process groups (Initiating, Planning, Executing, Controlling and Closing), and extend them to the domains of Program Management and Portfolio Management. These process groups, within three domains, along with the four stages of process improvement, were then used to organize Components within the model” (PMI, 2003). This approach presents a broader assessment compared to other models, increasing the complexity of the assessment.

2.4. Kerzner’s Project Management Maturity Model

KPMMM or Kerzner’s Project Management Maturity Model was created in 2001. The model was developed so it “can be used by corporations in performing strategic planning for project management and achieving maturity and excellence in a reasonable period of time.” (Kerzner, 2019).
The model is based on Kerzner’s observation of components that lead to excellence in PM, such as:

- effective communication,
- effective cooperation,
- effective teamwork,
- trust.

Due to these observations, the model is based mostly on behavioural dimensions. The model was not created with general dimensions that are addressable to each of the levels, instead it recognized five levels of maturity, each addressed by different questions in the assessment questionnaire (Kerzner, 2019):

- **Level 1 – Common Language** – the organization understands the need for project management and requires understanding of basic PM knowledge and language. It should be added that a company can use its own terminology, not just the one described in PMBOK® Guide.
- **Level 2 – Common Process** – the organization understands the need to define and develop a common process that can be transferred between projects, and this step also includes support of PM principles for other methodologies used in the corporation.
- **Level 3 – Singular Methodology** – the organization understands synergy from combining existing methodologies into one, singular methodology.
- **Level 4 – Benchmarking** – the organization understands the necessity of improvement to maintain competitive advantage, thus benchmarking is performed on a regular basis.
- **Level 5 – Continuous Improvement** – the organization uses the insights from benchmarking and employs them within the organization to improve PM processes.

It is worth mentioning is that even though the model has separate levels, it does not mean that each company falls into a single level, as the authors explain: “there exists a common misbelief that all work must be accomplished sequentially (i.e. in series). This is not necessarily true. Certain levels can and do overlap. The magnitude of the overlap is based on the amount of risk the organization is willing to tolerate. For example, a company can begin the development of project management checklists to support the methodology while it is still providing project management training for the workforce. A company can create a center of excellence (COE) in project management or a project management office (PMO) before benchmarking is undertaken.” (Kerzner, 2019).
3. Research methodology

3.1. General research design

Due to the exploratory nature of the study, it follows the qualitative approach and single case study research design (Eriksson and Kovalainen, 2016; Yin 2009). The main techniques of the data collection were structured in-depth interviews (IDI) with managers (triangulation of interviewees) and documentary analysis. The questionnaire used was based on the literature.

3.2. The studied company

The studied company is a leading Polish energy player, offering both construction and maintenance services. It currently has approximately 600 employees and specializes in maintenance, renovation, modernization, assembly and commissioning services, which are mostly applied to turbines and other engine room equipment, boilers and assisting devices, exhaust treatment installations, fuel transport and reloading, deslagging and ash removal installations. The company additionally operates its own manufacturing capabilities and performs various diagnostic services at the clients’ sites.

The company also conducts a long-term activity and has completed multiple projects including:

- multiple turbine sets and generator modernizations,
- boiler renovations,
- general overhauls of turbine sets,
- gas turbine installation,
- new control and automation equipment installations,
- renovations of control, automation, and measurement equipment,
- exhaust treatment equipment installations,
- full realization of heating plants,
- power plant fuel modernizations, including installing biomass systems and equipment.

It is clearly visible that the studied company is a sizeable and developed organization. The company’s market offer was created to make for a comprehensive suite of service for its clients, enabling the company to fulfill complex activity, providing its clients with renovation, modernization of the equipment as well as manufacturing and machining of necessary equipment and parts. The company also provides its clients with end-to-end service when it comes to realizing strategic projects. Its portfolio includes multiple extremely complicated projects in numerous areas. It operates in a market linked with projects of high strategic importance, large investment costs, and its operations are also sometimes assigned to the category of Megaprojects. It is also clear that the company maintains long-term relations with the majority of its clients, which may indicate its high reliability with project deliverables.
3.3. Respondents

The questionnaire was completed by three respondents, selected in cooperation with the HR manager. To fulfill the goals of the research, all three respondents are members of one department within the company and represent three different levels in organizational structure – low, mid and high. Each of the respondents was working on projects, and project management was considered a regular part of their responsibility.

3.4. Model chosen for assessment

The model chosen for assessment was Kerzner’s Project Management Maturity Model, one of the most popular, widely available models. Its advantages include the fact that it enables for customization and is based on the PMBOK® standard. The model is characterised by high availability of benchmarks, which is necessary to finalise the result, as it enables to compare the score obtained by the company to those of other companies dealing with Project Management.

3.5. Structure of the questionnaire

The questionnaire used for the assessment was a customized assessment, inspired by the article by Helder Celani de Souza (Johnson & Johnson – Brazil), Valerio Salomon (Sao Paulo State University), Carlos E S Silva (UNIFI) and Dimas Campos de Aguiar (Sao Paulo State University) in their article entitled “Project Management Maturity: an Analysis with Fuzzy Expert Systems”. They proposed a simplified version of the attachment, with 20 questions (4 for each level of maturity). The need for this customization was required by the studied company, who limited the time of assessment to maximum 15 minutes per person. Each respondent received a questionnaire with a set of statements in randomized order.

To correctly assign maturity levels to answers to prepared questionnaire a set of ‘pass’ rules had to be established for each of the examined levels:

- **Level 1:** The first part of the assessment contained eight single-answer questions, with 10 points assigned for each correct response. The maximum score was 80 points. In order to pass the maturity level, one had to score 60 or more points.
- **Level 2:** The level contained four statements that had to be answered using a scale (from -3 to 3 points). In order to pass the level, one had to score 6 or more points.
- **Level 3:** the third part contained six questions with single-choice answers. The points were granted according to the answer key. The level had four possible results according to Kerzner’s interpretation:
  - [24;30] points – your company compares very well to the companies discussed in this text. You are on the right track for excellence, assuming that you have not achieved it yet. Continuous improvement will occur.
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– (21;24) points – your company is going in the right direction, but more work is still needed. Project management is not totally perceived as a profession. It is also possible that your organization simply does not fully understand project management. Emphasis is probably more toward being non-project-driven than project-driven.

– (11;21) points – the company is probably just providing lip service to project management. Support is minimal. The company believes that it is the right thing to do, but has not figured out the true benefits or what they, the executives, should be doing. The company is still a functional organization.

– (0;11) points – perhaps you should change jobs or seek another profession. The company has no understanding of project management, nor does it appear that the company wishes to change. Line managers want to maintain their existing power base and may feel threatened by project management.

• Level 4 and Level 5: the fourth and fifth module in the assessment was built of four statements each. The statements had to be answered using a scale (from -3 to 3 points). In order to pass the level, one had to score 6 or more points.

4. Results

4.1. Overall results

The overall results of the Project Management Maturity assessment are shown in the table 2.

Table 2. Results of Project Management Maturity Assessment

<table>
<thead>
<tr>
<th>Position in org. structure</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>PMM level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>70</td>
<td>8</td>
<td>28</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>70</td>
<td>7</td>
<td>25</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>60</td>
<td>6</td>
<td>20</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2 shows the number of points gathered by each of the respondents. According to the rules of assigning PMM levels, Respondents 1 and 2 indicate the 3rd level of Project Management Maturity, whereas Respondent 3, the 2nd level.

The disproportion between the respondents may be a result of disrupted communication channels and lack of information-transparency between vertical tiers of the organizational structure. The scores show that the respondent representing lower level of management within the company obtained much lower scores than more experienced colleagues.

Moreover, worth highlighting the fact that the Respondent 1, representative of high-level management, scored enough points to reach the 5th level of maturity.
However, this does not affect the final PMM level, because he did not pass the 4th level. This may be caused by the fact that it is the top management who usually oversee continuous improvement, being responsible for analysis of current and desired capabilities, and top-level managers are the ones who prepare, design, and implement corrective actions. It might be the case that high-level management are simply most aware of ongoing changes, due to hands-on experience and greater possibility to compare outcomes of undertaken actions.

4.2. Question-level results

Project Management Maturity assessment can become a much more insightful tool to launch in the organization. It is not only the final score and level that is important. The provided answers can also be analysed in detail for signs of potential problems and opportunities for improvement, the question-level view enables to understand the implemented practices, undertaken decisions, its culture and beliefs. A continuous process of performing PMM study, analysing results, implementing improvements, and scoring them on the basis on the results of later performed research, enables companies to pursue continuous improvement and shape the Project Management function to become a competitive advantage.

Level 1:

Table 3. Results of Level 1 questions

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Respondent 3</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: author’s own elaboration.

For questions 1 to 5, all provided answers are mutual and do not show any distinctions. An interesting response was given to question 6 – about procurement. Only Respondent 2 managed to provide the correct answer, which might be caused by the division of responsibilities during project management. It may be organized in a way that only mid-level management is responsible for procurement.

Level 2:

Table 4. Results of Level 2 questions

<table>
<thead>
<tr>
<th>Level 2</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Respondent 2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Respondent 3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Source: author’s own elaboration.
The answers to Level 2 questions may point to the following conclusions:
- Project management is visibly supported by executives.
- All the respondents were unanimous that their organization has a good understanding of the principles of project management.
- Project management in the studied company is not organized using project sponsorships, as all the respondents either disagreed or had no opinion.
- The respondents agreed that their executives are willing to improve the maturity of project management within the company.

Level 3:

**Table 5. Results of Level 3 questions**

<table>
<thead>
<tr>
<th>Level 3</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: author’s own elaboration.

The answers to Level 3 questions show that the company uses a singular methodology for project management, while the answers to all the questions except the second are very similar across all the respondents. It is worth highlighting the fact that for question 2 – regarding benchmarking – the more experienced respondents provided answers indicating that benchmarking is a practice used by the company to improve its effectiveness. However, Respondent 3 answered that the company had never tried to use benchmarking. This may be due to the fact that lower-level managers are either not a part of benchmarking exercises within the company, or during their tenure they have not experienced such an exercise.

Level 4:

**Table 6. Results of Level 4 questions**

<table>
<thead>
<tr>
<th>Level 4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>2</td>
<td>2</td>
<td>-2</td>
<td>3</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>1</td>
<td>1</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: author’s own elaboration.

Conclusions from Level 4 questions:
- The answers regarding the questions about benchmarking further emphasize the fact that Respondent 3, as part of low-level management, is either not aware, or has never experienced benchmarking in the company.
• Respondents 1 and 2 disagreed that the company has found peers who are performing risk management by analysing the detailed level of the work breakdown structure, which might be caused by the fact that employed benchmarking did not cover risk management within its scope.
• On average, Respondent 1 – a member of high-level management – answered using more extreme statements than his colleagues. This might be caused by multiple reasons, one of them being that high-level management is mainly involved during benchmarking exercises and thus more satisfied and enthusiastic towards it.

Level 5:

<table>
<thead>
<tr>
<th>Level 5</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>3</td>
<td>-1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: author’s own elaboration.

The following conclusions can be drawn from Level 5 assessment questions:
• The respondents agree that the improvements made in Project Management methodology enabled the company to be closer to its customers. This may indicate that the company has improved its planning process and thus is more reliable when it comes to fulfilling deadlines or is able to perform more cost-efficient project management.
• The respondents’ opinions are split as to whether the software enabled them to improve their PM methodology.
• The respondents agree that the company made improvements allowing for quicker integration of activities.
• All of the employees participating in the study either agree or strongly agree that software lowered the number of prepared documentation and reports.

4.3. Comparison to benchmarks

The results of the Project Management Maturity Assessment can also be compared to available benchmarks – the maturity levels achieved by other companies. When comparing to benchmarks available on pmsolutions.com and Pennypacker 2002, one may reach certain conclusions.

The studied company operates in two industries: professional services and manufacturing. From figures shown below it is possible to conclude that:
• The firm is among 33% of companies who have Project Management Maturity at Level 3 or higher.
• The company is among approximately 15% of companies within its industry who are scoring PMMM at Level 3.
• The studied company exceeds the average industry level both for professional services and manufacturing.

5. Discussion and Conclusion

Many organizations have taken up the challenge to benefit from their Project Management function as a lever of competitive advantage. Over time, numerous Project Management Maturity Models have emerged, with dominant forces in the market, such as OPM3 and KPMM. This article presents the results of an assessment conducted on a company providing professional services and a manufacturer of boilers located in Poland. The assessment showed that the company is situated at Level 3 of project management maturity, however it has started to invest into its development to higher levels.

The company, when compared to the benchmarks, has a more mature Project Management function than the average for its peers. Despite that, the company is visibly striving to continuously develop its capabilities.

Project Management Maturity Models can also be used to design and implement corrective actions to improve company performance. Suggesting changes would require conducting a full-scale exercise to comprehensively measure the company’s performance. Nevertheless, even this shortened version highlights a few areas that might be beneficial to investigate.

Potential areas of improvement include:
• Improve vertical communication channels in a way that would enable managers of all levels to access information about actions implemented in the company. This would allow low-level management to be informed about ongoing changes, results of implemented corrective actions etc. This might have a positive impact on Project Management itself, as a transparent exchange of insights could encourage less experienced employees to initiate problem solving exercises, bringing a fresh perspective to the discussion.
• Procurement during Project Management might be re-organized, enabling less experienced colleagues to assist mid-level management. This could improve workload spread and facilitate easier promotions.
• Currently the company is not organizing its work using project sponsorship. Such practice is commonly used in multiple sectors; however, this might also be a conscious decision of the organization resulting from industry-specifics or corporate culture. It might be beneficial to perform benchmarking on whether project sponsorship is used at peer companies or to consult experts with experience in the market the company operates. The model might be beneficial because the project sponsor can serve as a leader, which would enable to promote it within the organization, and to ensure the appropriate and flexible
resource allocation. Finally, the sponsors can function as another party during project management, bringing their unique perspective.

- Benchmarking is currently handled only by mid and high-level management. Introducing less experienced colleagues to the benchmarking process could improve the overall effectiveness of Project Management, enabling them to understand their current and desired capabilities and could accelerate training.

- Implementing risk management benchmarking to improve current resiliency. Such improvement could result in higher customer satisfaction, due to more reliable deadlines to deliverables.

- The company should gather feedback on its software improvements, e.g. through discussion panels. The study showed that managers are split when it comes to believing in improvements to Project Management methodology brought by software investments. Alignment when it comes to software could enable the company to improve its effectiveness.

Implementing the mentioned corrective actions could push the company towards achieving higher Project Management Maturity. Given its size and complexity of the realised projects, the company could highly benefit from the achievement of excellence in the field, and should drive towards reaching Level 5 of maturity; Such accomplishment could further improve its competitiveness on the market.

The methodological contribution of the study is that the results confirmed the need for the triangulation of respondents as the assessments of single representatives could be subjective, hence the proposed approach using representatives from different organizational levels is seen as more appropriate. The study was subject to some limitations. The research was performed under time constraints and had a small sample size. In the future, such studies can be followed by research on a broader selection of companies, industries and respondents under no time constraints. The presented research could also be continued in the future by performing a more complex version of the diagnostics or using other models.

References


**Badanie dojrzałości zarządzania projektami: studium przypadku wiodącej firmy z sektora energetycznego**

**Streszczenie:** Celem artykułu jest przedstawienie postępów w zakresie dojrzałości zarządzania projektami oraz wskazanie potencjalnych korzyści wynikających z przeprowadzenia takiej diagnostyki. Najpierw zaprezentowano podsumowanie przeglądu literatury, wprowadzając pojęcie dojrzałości zarządzania projektami oraz omawiając najpopularniejsze modele dostępne w tej dziedzinie. W artykule omówiono również wyniki badań przeprowadzonych u czołowego polskiego gracza energetycznego z wykorzystaniem metody studium przypadku z indywidualnymi wywiadami pogłębionymi jako główną technikę zbierania danych. Badanie pokazuje, że przeprowadzona w firmie ocena dojrzałości zarządzania projektami pozwala na wiele spostrzeżeń. Taka diagnostyka może prowadzić do znacznej poprawy wydadności funkcji zarządzania projektami w firmie. W artykule podsumowano diagnozy przeprowadzoną w dużej firmie z sektora energetycznego, przedstawiając krótki opis organizacji wewnętrznej funkcji zarządzania projektami. Wyniki są przydatne dla naukowców i profesjonalistów zainteresowanych tematem oceny dojrzałości zarządzania projektami i zrozumieniem wynikających z badania wniosków.

**Słowa kluczowe:** dojrzałość zarządzania projektami, zarządzanie projektami w energetyce, model oceny, dojrzałość projektowa.