

## AREAS OF MATURITY IN PROJECT MANAGEMENT IN LOCAL GOVERNMENT ORGANIZATIONS IN POLAND

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**Purpose:** The purpose of this article is to determine the level of maturity in project management in selected areas in local government organizations in Poland.

**Design/methodology/approach:** The analysis conducted for this paper included literature analysis, survey research and analysis of research results. The objectives of the article were achieved by obtaining answers to the formulated research questions.

**Findings:** Based on the literature review, the article identifies project management maturity levels and indicates the areas in which project management maturity is studied. Based on the results of the study, the level of maturity in four areas of project management in local government organizations in Poland is indicated.

**Originality/value:** The study of project maturity in four areas of project management in local government organizations in Poland, allowed us to identify the area in need of improvement. This is very important, because often limitations in one area hinder the achievement of higher levels of maturity in other areas of project management maturity.

**Keywords:** project management, local government organisations, maturity in project management.

**Category of the paper:** research paper.

### 1. Introduction

Project maturity testing is done using maturity models. Currently, there are many different maturity models, most of which have been developed for the purpose of studying the maturity of enterprises. Based on these models, project management maturity models have been developed. They are based on five levels of maturity: initial level, recurring level, defined level, managed level and optimizing level (Kerzner, 2001; Spalek, 2013; Project Management...). These five levels define an ordinal scale for measuring maturity. These levels also help

an organization prioritize its improvement efforts (Cooke-Davies, Arzymanow, 2003). Project management maturity models can therefore be used to measure current capabilities and identify improvement goals for organizations that want to improve project management effectiveness to successfully execute projects (Mittermaier, Steyn, 2009).

Local government organizations carrying out public tasks should treat some of these tasks as projects. This makes the adoption of a project management method a necessity. Taking into account the number of projects implemented by local government organizations and the desire to increase the effectiveness of the activities undertaken in project management, it is important to determine the level of maturity. The study of maturity in project management is most often carried out by means of questionnaires, in which the questions are concentrated in areas related to human resources, to the project management methods and tools used, to the project environment and to project knowledge management.

The purpose of this article is to determine the level of maturity in project management in selected areas in local government organizations in Poland. The objective will be achieved by obtaining answers to the following research questions:

1. What is the level of maturity in project management in local government organizations in Poland in the studied maturity areas, i.e.: methods and techniques, human resources management, project environment management, project knowledge management?
2. Are there differences in the level of maturity in project management in the studied areas between poviats councils and city councils?

Surveys conducted using the method of standardized questionnaire interviews with computer assistance, CAWI, which is a quantitative information gathering technique, were used as the basis for the answers. The surveys were conducted in Poland in December 2019 and January 2020 among randomly selected Polish poviats councils and city councils. As a result of the research undertaken, data was collected from 200 poviats councils and city councils. The presentation of the research results is preceded by theoretical considerations regarding models for assessing maturity in project management.

## **2. Maturity models in project management based on the literature**

Assessing an organization's project maturity status requires the use of appropriate tools, known as project maturity models. In response to this need, project maturity models have been developed to serve as a framework for assessing project management competence and to improve project management competence in an organization. The most well-known project maturity models include:

- The Kerzner Project Management Maturity Model.
- Organizational Project Management Maturity Model.
- OGC Project Management Maturity Model.
- Prince2 Maturity Model.
- PM Solutions Project Management Maturity Model.
- Author's model S. Spalek.

These models assume that the higher the level of maturity an organization achieves, the greater the chances of successful project implementation.

The vast majority of maturity models present project management maturity in a five-level staircase structure (Table 1). The lowest-first level deals with informal project management, while in the second level there are already some defined processes, which, however, are selectively applied. The third level of maturity most often represents the organization's implemented project management methodology, while the fourth and fifth levels of maturity deal with implemented, standardized project management process systems. Organizations at these highest levels of maturity use performance indicators for these processes and, based on the results, continuously improve them.

**Table 1.**  
*Characteristics of project maturity models*

<b>Model</b>	<b>Description (model structures)</b>	<b>Maturity levels</b>
The Kerzner Project Management Maturity Model	An evaluation questionnaire is used to assess the current level and preparation of measures to improve project management.	Five levels ie: 1. Common language. 2. Common processes. 3. Single methodology. 4. Benchmarking. 5. Continuous improvement.
Organizational Project Management Maturity Model (OPM3)	It is a standard of so-called "best practices" for assessing and developing an organization's capabilities in managing project portfolios, programs and projects. The model consists of: Best Practices; Skills; Results; Indicators; Navigating Standards. The assessment cycle consists of 3 elements, i.e., knowledge, assessment and improvement, within which there are 5 activities that make up the cycle, i.e., Prepare for assessment. Conduct the assessment. Plan improvements. Implement the improvements. Solidify the process.	Four levels, ie. 1. Standardization. 2. Measurement. 3. Control. 4. Continuous improvement.
OGC Project Management Maturity Model	It sets the standard against which the maturity level of an organization can be measured. The assessment is carried out in 2 stages. In the first, the approximate maturity level of an organization's project management is identified. In the second stage, the actual maturity level of the organization is determined, and the result obtained is verified by the APMG (Association of Project Management Group), which accredits the maturity level of the applicant organization.	Five levels, ir: 1. Initial. 2. Repetitive. 3. Defined. 4. Managed. 5. Optimized.

Cont. table 1.

Prince2 Maturity Model	Each maturity level corresponds to seven process perspectives, ie: Management Control. Benefits management. Financial management. Stakeholder engagement. Risk management. Organizational management. Resource management.	Five levels, ie: 1. Awareness of the process. 2. Repeatable process. 3. Defined process. 4. Managed process. 5. Optimized process.
PM Solutions Project Management Maturity Model	PMMM integrates two leading project and process management standards, PMBOK® Guide and CMM, respectively.	Five levels, ie: 1. Initial 2. Structured process and standards 3. Organizational standards and institutionalized process 4. Managed process 5. Process optimization
Author's model S. Spalek	Maturity measurement in project management is carried out in the following four areas, i.e.: methods and tools, human resources, project environment, project knowledge management. Maturity is assessed in each area separately.	Five levels, ie: 1. Initial. 2. Standardization. 3. Application. 4. System management. 5. Self-improvement.

Source: own elaboration based on: Harpham, Hinley; Marciszewska, 2019, pp. 39-40.

Analyzing the various models of maturity in project management, one should agree with S. Spalek, who noted that maturity in project management is most often studied in the following areas: human resources, methods and tools, project environment. Attempts are also made to measure knowledge management processes in the aforementioned areas, which, however, according to the author, is insufficient and should be done in a separate fourth area. Such an approach, i.e., the study of the degree of maturity in project management divided into four areas (human resources management, methods and techniques, project environment management, project knowledge management), was used in this research.

The field of human resource management focuses on planning, attracting and motivating employees during projects. The basis of human resource management is the selection of such participants who will most effectively carry out the tasks assigned to them. The right selection of project employees makes it possible to generate profits. Project participants are required to have the right knowledge and skills, as working in a team requires developing a schedule so that it can be completed within the allotted time. In a well-chosen team, employees can demonstrate creativity, responsibility, accuracy of decisions, commitment.

The area of methods and techniques in assessing the degree of maturity in project management is a fundamental area for evaluation, without detracting from the other areas. M. Trocki notes that: "knowledge of project management principles, methods and techniques is becoming an indispensable component of the expertise not only of management specialists, but also of those working in other fields" (Trocki, 2013). Project management methodologies are a source of best practices that act as standards, procedures that describe the activities and processes that the project manager, project team members and other participants must undertake in order to carry out a project successfully (Wyrozowski, 2014).

The area of project environment management includes the environment (context) of the project, along with the factors that affect the success of the project (Engwall, 2003). The environment in which the project is implemented determines the approach to its implementation and affects its ultimate success (Swietoniowska, 2015; Trocki, 2013). The analysis of the project environment makes it possible to examine the conditions for project implementation. The project environment has an impact on projects. This influence can be both positive and negative.

The area of project knowledge management concerns knowledge, that is, an organized set of information with rules for interpreting it (Koźminski, 2004), and the process of knowledge management. It should be noted that knowledge is strongly personified and closely related to the human factor, since people, not the organization, are the main carrier of the knowledge resource. Knowledge management is identified with the process that contributes to the achievement of measurable results (Bukowitz, Williams, 1999; Perechuda, 2005; Perez, Ordonez de Pablos, 2003; Wiig, 1993). On this basis, it can be said that knowledge management should be considered not only in terms of information management, but also in terms of managing knowledge workers.

### **3. Research method**

For the purpose of preparing the article, the research mode was adopted in accordance with the methodological principles of the management sciences. The research mode consists of the following stages: formulation of the research problem and research questions, conducting the research, analyzing the collected empirical material and formulating conclusions in response to the research questions.

The literature research conducted on project maturity in local government organizations in Poland indicates that the level of project maturity of local government units is low. This is confirmed by the results of a study conducted by M. Dolata on the project maturity of basic local government units. They show that half of the surveyed units are at the second level of maturity, and as many as 26% of units at the first level. Only 17% of the surveyed units were included in the third level due to their moderate maturity (Dolata, 2013).

The maturity of the offices of municipalities, cities and county offices was studied by J. Strojny (Strojny, 2019). However, this research focused on the process-project maturity of these organizations. According to the results of this research, most of the surveyed organizations reached a medium level of process-project maturity.

In summary, local government organizations are at a low level of project maturity and there is a lack of dedicated tools for assessing project management maturity measurement in local government organizations in Poland.

With this in mind, it is therefore justified to undertake empirical research to at least partially fill the identified research gap.

The purpose of the research presented in this article is to determine the level of project management maturity in four maturity areas in local government organizations. The main objective will be achieved by obtaining answers to the following research questions:

1. What is the level of maturity in project management in local government organizations in Poland in the studied maturity areas, i.e.: methods and techniques, human resources management, project environment management, project knowledge management?
2. Are there differences in the level of maturity in project management in the studied areas between poviats councils and city councils?

Based on a critical analysis of the literature on project maturity models used in enterprises, a tool was developed to measure and assess project maturity in local government organizations. This approach seems, to be appropriate due to the need to take into account the type of organizations under study, which are local government organizations.

The questionnaire developed for the study consisted of statements rated on a 5-point Likert scale. The questionnaire consisted of a metric and 32 questions grouped into 4 thematic areas, i.e.: human resource management, methods and techniques, project environment management, project knowledge management. The task of respondents representing the surveyed local government organization was to respond to the statements given in the standardized table relating to the surveyed areas.

Determining the degree of maturity in each area required the adoption of the author's algorithm, which was prepared based on the principle of accumulation. This principle means that achieving a higher level of maturity requires meeting all the conditions for that level, as well as all the conditions specified for the preceding levels. According to the adopted algorithm, the local government organization can be classified accordingly:

- at level 1 – when it meets all the conditions specified for level 1 in a given maturity area,
- at level 2 – when it meets all the conditions set for levels 1 and 2 in a given maturity area,
- at level 3 – when it meets all conditions specified for level 3 in a given maturity area and all conditions specified for levels 1 and 2,
- at level 4 – when it meets all the conditions specified for level 4 in a given maturity area and all the conditions specified for levels 1, 2 and 3,
- at level 5 – when it meets all the conditions specified for level 5 in a given maturity area and all the conditions specified for levels 1, 2, 3 and 4.

The local government organization can be classified into levels 1, 2, 3, 4, 5, respectively. The characteristics of the maturity levels in each area are shown in Table 2.

**Table 2.***The characteristics of the maturity levels in each area*

Level	Maturity area in project management			
	Human resource management	Methods and techniques	Project environment management	Project knowledge management
Level 1.	The organization lacks formal guidelines and procedures, in terms of managing human resources in projects.	The organization lacks formal guidelines and procedures for project management tools and techniques.	Local government organization, does not have a system to support project management.	The local government organization does not have defined standards for project knowledge management.
Level 2.	The organization tries to ensure that competent people are available for the project, but this is hampered because there is very rarely a formal evaluation system in place to measure the level of competence of these people.	The local government organization has limited use of project management tools and techniques There are defined project management processes in the organization, but they are used selectively.	There are limited project-specific management processes in local government organizations. Very rarely and to a limited extent are measures taken to manage project stakeholders.	In the local government organization, awareness of the importance of knowledge in effective project management is not widespread, and measures are not taken to collect and store knowledge and experience from completed projects. The organization lacks a culture of sharing knowledge and experience.
Level 3.	The organization tries to provide competent people for project planning and implementation, and cares about the development of project managers and project team members by providing training in this area. However, there are not always elaborate rules for appointing people for project implementation and rules for motivating people who perform particular roles in the project team. The organization only sometimes uses a formal evaluation system to measure the level of competence of those involved in project planning and implementation.	The organization has defined processes as well as tools and techniques for project management and these are used in most projects.	There is an awareness in local government organizations of the importance and value of project management, which translates into taking steps to align management processes with project needs. The authority seeks to use project management as an avenue to achieve strategic goals, and project managers seek to manage project stakeholders.	In the organization, there is an awareness of the importance of knowledge in effective project management, and there are efforts to collect and store knowledge and experience from completed projects. Unfortunately, the accumulated knowledge and experiences are not always used in subsequent projects, and project managers and project team members only sometimes share their experience and knowledge.

Cont. table 2.

<p>Level 4.</p>	<p>The organization always provides competent people for the project, in addition, it provides training and takes care of the development of project managers and people who perform specific roles in the project team. There are developed rules for appointing people to the project and they are often applied in the organization. There are elaborate rules for motivating people performing particular roles in the project team, a formal evaluation system is used to measure the level of competence of people involved in the project.</p>	<p>The organization has and always uses an elaborate project management methodology, in particular, it has a common, defined language for describing project activities and results, it has and uses appropriate tools and techniques, and it has defined processes for initiating, planning, executing, monitoring, controlling and closing the project. Such an organization often has a system for collecting and sharing data on completed projects.</p>	<p>There is a high awareness of the importance and value of project management in local government organizations. The organizational structure takes into account the needs of project management support, so there is often a separate project management organizational unit. The authority uses project management as an avenue to achieve strategic goals, has a plan to standardize, measure control and improve project management processes, and project managers effectively manage project stakeholders.</p>	<p>There is an awareness in the organization of the importance of knowledge in successful project management. Measures are always being taken to collect and store knowledge and experience from completed projects. The accumulated knowledge and experiences are very often used in subsequent projects, and project managers and project team members share their experience and knowledge. A system to support project knowledge management is implemented in the organization.</p>
<p>Level 5.</p>	<p>The organization has and applies a formal system for evaluating the employees involved in the project, applies developed rules for appointing people to the project, and motivates people in specific roles on the project team. In addition, the organization analyzes and implements improvements in processes related to the recruitment of people for projects and processes related to the development of managers and people performing particular roles on the project team.</p>	<p>The organization analyzes and improves the developed project management methodology, particularly with regard to processes related to project initiation, planning, execution, monitoring, control and closure. In addition, the organization has a formal system for collecting and sharing data on completed projects, which allows lessons to be learned and project management processes to be improved.</p>	<p>In the local government organization, awareness of the importance and value of project management is widespread, and the organizational structure is adapted to support project management by, among other things, separating the project management organizational unit. Project management for the achievement of strategic goals is applied to its full extent. There is a plan to standardize, measure, control and improve project management processes. Processes related to project stakeholder management are analyzed and improved.</p>	<p>In a local government organization, awareness of the importance of knowledge in effective project management is widespread. This results in the collection and storage of knowledge and experience from completed projects in such an organization. A full system is implemented to support project knowledge management, and in addition, in such an organization, efforts are made to continuously improve processes related to the collection, storage and use of project knowledge and experie</p>

Source: own elaboration.



## 4. Research results

As a result of the undertaken research conducted in Poland in December 2019 and January 2020 among randomly selected Polish poviats councils and city councils, data was collected from 200 organizations. Fifty-five poviats councils and 145 city councils participated in the survey, which, with a significance level of  $\alpha = 0.05$  and an acceptable error of  $e = 5\%$ , constitutes a representative research sample.

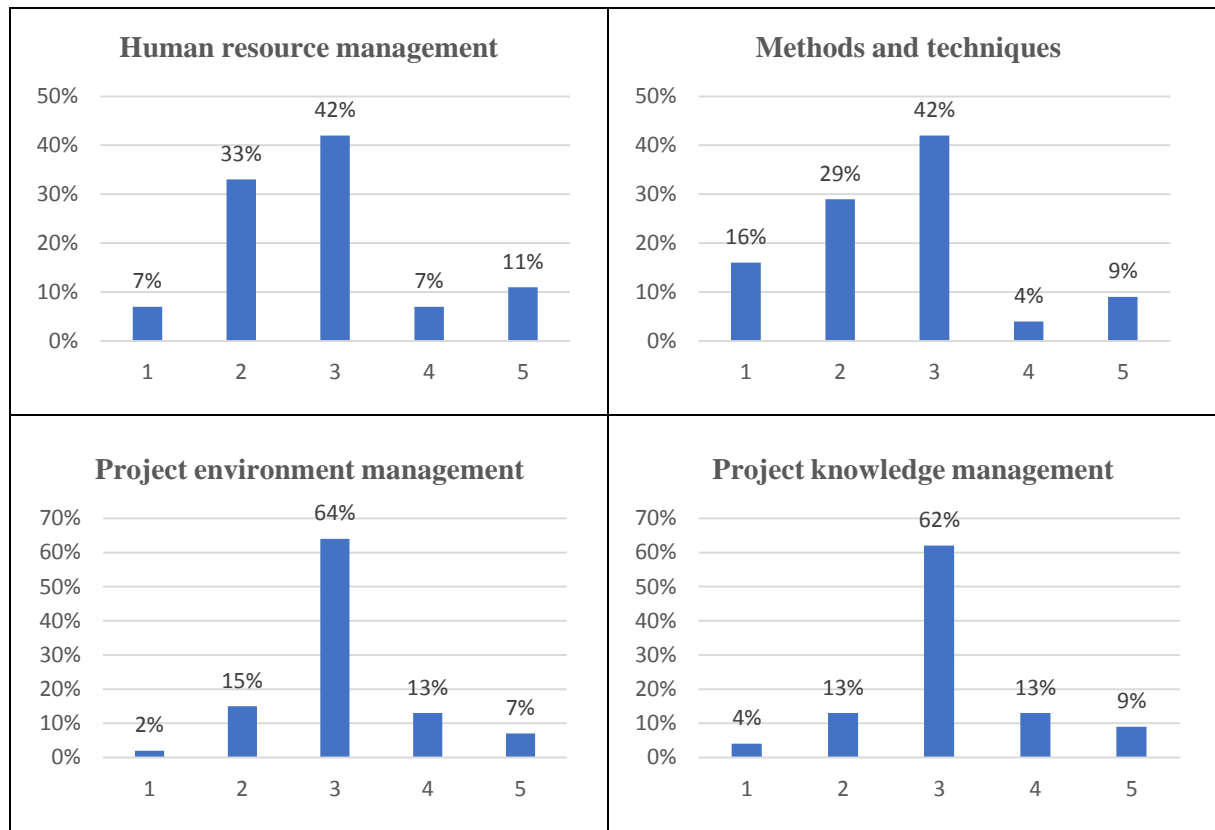
Data were collected using the CAWI (Computer-Assisted Web Interview) method among competent local government administration officials, i.e. deputy mayors, chief executives, directors, department heads, secretaries, specialists and inspectors.

Among the respondents, the largest number (29.5%) are office employees with seniority of more than 20 years. An equally large group of respondents were those with seniority of 16 to 20 years (26%), and with seniority of 11 to 15 years (25%). Respondents with seniority of 6 to 10 years accounted for 11%, with seniority of 4 to 5 years 3%, and with seniority of up to 3 years 5.5%.

By far the largest group of people who completed the survey were those with higher education (97%). Respondents with secondary education accounted for 3%.

Based on the survey, the level of project management maturity in the surveyed local government organizations in Poland ranged from 1 to 5. It reached a minimum value of 1 and a maximum value of 5 in each of the surveyed areas, i.e. human resources management (ZL), methods and techniques (MT), project environment management (ZŚ), project knowledge management (ZW). The highest average value of project maturity level was achieved for the project environment management area (3.04), followed by project knowledge management (3.0), human resources management (2.77). The lowest average value of project maturity level was achieved for the area of methods and techniques (2.47). For the ZW, ZŚ, ZL areas, the median was 3, and for the MT area, the median was 2.

The variation of individual values was highest in the area of method and technique, and decreased in the areas of human resource management, project knowledge management, and the lowest variation of individual values was in the area of project environment management. Analyzing the distributions of project management maturity level scores presented in Figure 1, it is possible to see the differences occurring among the areas that local government organizations in Poland have achieved.



**Figure 1.** Distribution of project management maturity level scores in local government organizations in Poland by area.

Source: own elaboration.

Analyzing the results, the largest number of local government organizations reached level 3 in project management maturity in each area. The largest number, almost 64% of organizations, recorded level 3 in the area of project environment management. Next, 62% of organizations recorded level 3 in the area of project knowledge management. Local government organizations also recorded level 3 maturity in the area of human resource management (42%) and in the area of methods and techniques (35%), but in these areas there is considerable variation in the maturity levels achieved. In the area of human resource management, level 2 project maturity was recorded by as many as 32% of organizations, as in the area of method and technique by 31%.

Considering all the areas surveyed, i.e., ZL, MT, ZŚ and ZW, levels 4 and 5 were achieved by few organizations. With the highest number, 10% of organizations achieved level 5 in the area of human resources management. In contrast, 13% of organizations achieved level 4 in the project environment management area.

Analyzing separately the level of maturity in poviát councils and city councils in the areas studied, one can see some differences occurring between these units.

Poviát councils in Poland obtained the highest average value in the areas of project knowledge management and project environment management (3.1), and the median for these areas was 3. The lowest average (2.6) was recorded in the area of methods and techniques.

Analyzing the value of the standard deviation, it can be seen that the lowest values were recorded for the areas of project environment management (0.8) and for the area of project knowledge management (0.88).

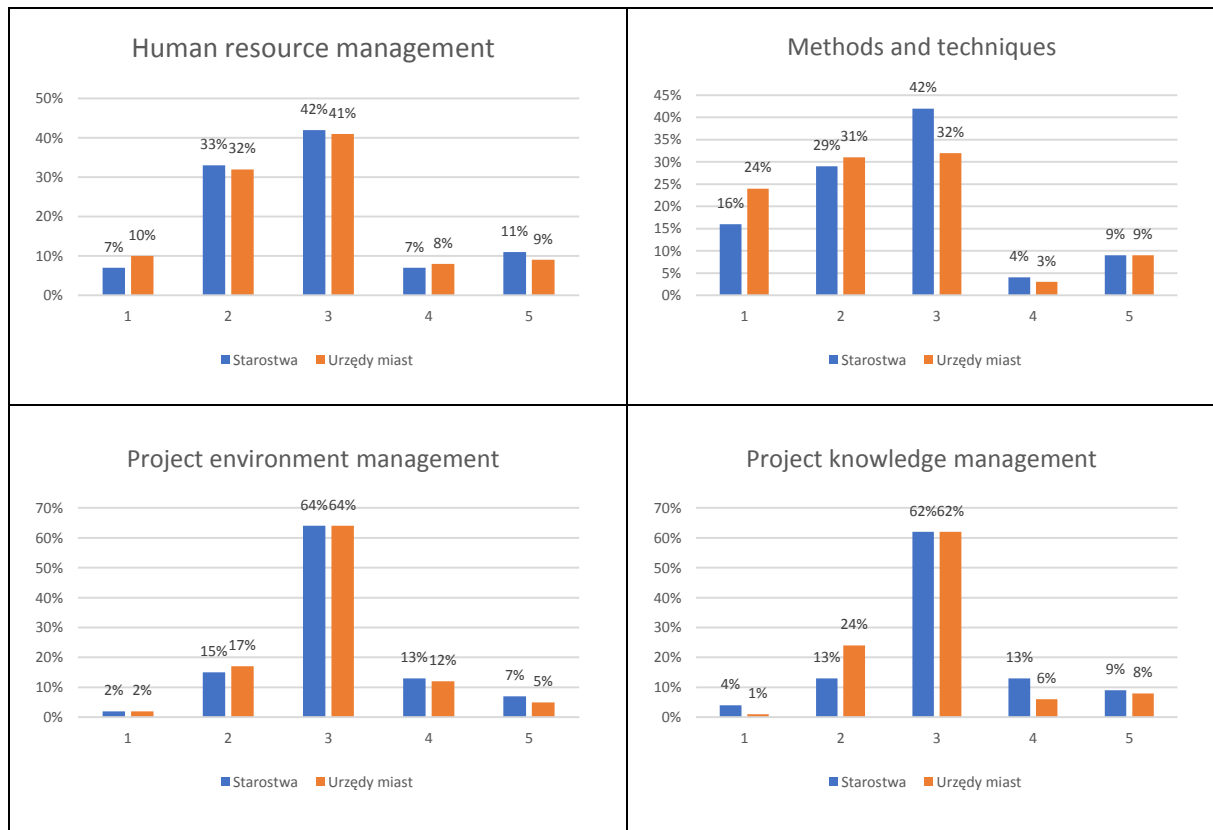
The highest percentage of poviats councils achieved level 3 in the project environment management area (64%) and in the project knowledge management area (62%). Poviats councils in the area of human resource management and in the area of methods and technology also recorded level 3 in project management maturity, with more dispersion in these areas. In the area of human resource management, 33% of poviats councils recorded level 2 in project maturity, and 11% recorded level 5 in project maturity. In the area of methods and techniques, 29% of poviats councils recorded level 2 project maturity, and 9% recorded level 5 project maturity.

City councils in Poland obtained the highest average value in the area of project environment management (3.0), while they obtained 2.95 in the area of project knowledge management and 2.75 in the area of human resource management. The lowest average was recorded for the area of methods and techniques, which was 2.42, and the median for this area was 2. Analyzing the value of the standard deviation, it can be seen that the lowest values were recorded for the project environment management area (0.75) and the project knowledge management area (0.79), and the highest for the methods and techniques area (1.16).

The highest percentage of city councils achieved level 3 in the area of project environment management (64%) and in the area of project knowledge management (62%). In the area of human resource management, level 3 maturity in project management was achieved by 41% of city councils. In the area of methods and techniques, 32% of offices recorded level 3, and 31% of offices recorded level 2. The most scattered results can be seen in the area of methods and techniques and in the area of human resource management. In the area of human resource management, 32% of offices recorded level 2 in project maturity, and 9% recorded level 5 in project maturity. In the area of methods and techniques, 24% of city councils recorded level 1 project maturity, and 9% recorded level 5 project maturity.

Based on the survey, no significant differences can be observed between the level of maturity in project management in city councils and poviats councils in Poland in three areas, i.e. in the area of human resource management, in the area of project environment management and in the area of project knowledge management. Only in the area of methods and techniques are there slightly larger differences in the level of maturity in project management, i.e. 10% in level three and 8% in level one. However, they are not large enough to speak of a significant difference between city councils and poviats councils.

Figure 2 shows the distribution of project management maturity level scores in each area achieved by city councils and poviats councils in Poland.



**Figure 2.** Summary of the distribution of project management maturity level scores in city councils and poviats in Poland by area.

Source: own elaboration.

## 5. Discussion

The literature emphasises that project management maturity is important for organisations because it affects the efficiency and effectiveness of project delivery. Organisations with higher project maturity are more likely to achieve project success, reduce risk and achieve the intended outcomes. Therefore, many organisations strive to continuously improve and enhance their project management competencies through training, implementing best practices and monitoring project performance. At the highest level of maturity, an organisation has effective processes that are continuously improved, has the ability to anticipate and manage risk, as well as a high project culture, and is able to deliver high quality projects as required.

The research carried out in local government organisations showed that, in terms of project maturity level, these organisations most often reach the second or third maturity level. For the area of project environment management, the average value was 3.04, similarly for the area of project knowledge management - the average value was 3.0. The average value of the maturity level achieved in the area of human resources management was 2.77, and for the area of methods and techniques - 2.44.

The study of project maturity in local government units in Poland was conducted by M. Dolata. Her research shows that the average level of project maturity in the surveyed units is relatively low and amounts to 2.04. The author's research also shows that basic local government units in Poland are at the stage of acquiring management knowledge relating to the integration of project management processes with the management methods used so far.

Admittedly, the average level of project maturity according to M. Dolata's research is lower than the one obtained in this research, but it should be noted that the research conducted by M. Dolata was carried out much earlier, which undoubtedly influences the obtained results. In addition, the author (Dolata) pointed out the difficulties of integrating project management processes with the management methods used so far, which indicates deficiencies in the area of methods and techniques. And as M. Trocki, the area of methods and techniques is a fundamental area for assessing the degree of maturity. It seems that this area is of particular importance in local government organisations, as the employees of these organisations are used to carrying out tasks according to specific procedures. Methodologies, methods, standards of project management can be such a procedure, as they comprise a logical and coherent set of detailed recommendations as to how to proceed in managing the entire project, leading to the planned result.

## 6. Summary

The conducted research made it possible to determine the level of maturity in project management in city councils and poviats councils in Poland in four areas, i.e. human resources management, methods and techniques, project environment management, project knowledge management. The highest average value of project maturity level was achieved for the area of project environment management (3.04), followed by project knowledge management (3.0), human resources management (2.77). The lowest average maturity level value was achieved for the area of methods and techniques (2.44). Generalizing, it can be concluded that the method and technique area is separated from the other areas by approximately a distance of one maturity level. This shows that local government organisations should focus on developing and implementing a structured approach to project management, including having a common, defined language for describing project activities and results, as well as having and using appropriate project management tools and techniques. It is important that the organisation has defined processes for initiating, planning, executing, monitoring, controlling and closing a project.

When analysing the level of maturity in the individual areas separately for the city councils and poviats councils, no significant differences can be seen in three areas, i.e. in the area of human resources management, in the area of project environment management and in the area

of project knowledge management. Only in the area of methods and techniques are there slight differences in the level of maturity in project management.

The conducted survey contributed to the acquisition of knowledge about the level of maturity in four areas of project management in local government organisations in Poland. The results of the study indicate the need to improve the area of methods and techniques in local government organisations.

Due to the limitations of the research (the size of the research sample and the number of respondents representing a given organisation), the results cannot be generalised to the entire population, but they may indicate the directions of further research within the framework of the undertaken issues.

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