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## ARTICLES

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### **WORK ENGAGEMENT AND KNOWLEDGE MANAGEMENT – ELEMENTS OF INTANGIBLE ASSETS AFFECTING THE VALUE OF SUBCARPATHIAN ENTERPRISES**

#### **Summary**

In the 21st century, the success of a company is very much determined by the value of intellectual capital, especially human capital, which employees hold. Employee involvement in work and commitment to knowledge management are elements of capital that affect the development and value of Podkarpacie companies. Proper management and use of this intangible resource have a crucial impact on the operation of the company and its real chances of success. Entrepreneurs are aware that employed employees have a considerable impact on the success of the company – without them, success would not be possible and indeed very difficult to achieve.

The publication presents the results of a study on employee involvement in work and company involvement in knowledge management in selected companies in the Podkarpacie region.

**Keywords:** intangible assets, human capital, work engagement, knowledge management.

**JEL classification:** M12.

## Introduction

Work engagement is becoming an increasingly important area of business interest. Both the business community and researchers have begun to recognize that the level of engagement can be an essential variable of job performance, as well as an indicator of employee satisfaction. Engagement is also crucial for employee satisfaction with the work they perform. Knowing the strengths of employees, managers can take advantage of employees' abilities, thereby maximizing productivity.

Human capital is seen as the most important of all enterprise resources, especially employees, who are the most valuable assets of an enterprise. The strength of an enterprise's human capital is not only the acquired general and professional knowledge and skills developed in the course of previous work but also the ability to prove themselves in the profession, abilities not yet revealed, aspirations, their deep motivation to work and learn, creativity, willingness to take risks and personal sense of responsibility for the success of the enterprise. Human capital is, therefore, people who can work together<sup>1</sup>. Well-managed human capital, through the proper motivation of employed employees, makes it possible to create and use specialized knowledge, competence, and creativity.

Employee engagement at work is an element of intellectual capital that contributes to increased productivity, job satisfaction, sales revenue, reduced absenteeism, improved service delivery, and customer interaction. Employee engagement benefits companies through reduced absenteeism. It is an essential element because hiring another new employee involves additional costs to be borne by a company. When employees are actively engaged, they come to work with a positive attitude, so they are often willing to go above and beyond the company's goals.

Engaged employees are passionate and highly committed to their work. On the other hand, some uncommitted employees put minimal effort into their work and perform less well. It can have negative consequences for productivity and, often, workplace safety. If a significant number of employees in companies are uninvolved in their work, the impact on the profitability of the company can be seen relatively quickly. If employee engagement has a positive impact on the effectiveness of the company as a whole, it is worth considering how to support the development of engagement among employees in practice.

The purpose of the publication is to assess employee involvement in work and the company's commitment to knowledge management - intangible capital factors that can significantly affect the value of Subcarpathian enterprises.

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<sup>1</sup> Rybak M., *Human capital and enterprise competitiveness*, Poltext Publishing House, Warsaw 2003, p. 39.

The article will present the results of an empirical study of organizational commitment and involvement in knowledge management in selected Subcarpathian companies.

### **1. Commitment to work and knowledge management**

When estimating the intellectual capital of a company, which is the intangible asset of a company, especially human capital, motivation capital is also taken into account for the reason that it is a vital element that participates in the construction of value by the company. A company does not own human capital and can only be leased by the company from the employees it employs." In the 21st century, knowledge workers not only want to do what they are interested in, what they are good at, and what they have been well trained to do but also to do it in a place that sustains their intrinsic motivation. Being involved in what we are doing is one of the most essential components of an employee's sense of happiness, which translates into a desire to perform and gives employees the energy to work more effectively.

P. Drucker, in 1993, wrote that the fundamental economic resource is no longer material capital, natural wealth, or labor but is and will remain knowledge, and in a knowledge society, "knowledge workers" will play a central role<sup>2</sup>. An enterprise that is open to knowledge is, at the same time, an enterprise that is open to people developing and seeking new solutions.

To begin with, some concepts regarding engagement itself. Well, it is worth answering the question, what is a commitment to work? If we say that someone is engaged, such a statement seems very simple and obvious. The situation is different when we ask about an employee's commitment to work. This commitment will be when the employee has a positive attitude towards the company and its values.

The first concept of using employee engagement was created by the Gallup Institute (an international research organization) in 1985. In 1988, the company patented a tool consisting of 12 selected questions called Q12. The tool was based on research that isolated key factors that build commitment and influence specific indicators that demonstrate organizational performance (customer satisfaction, employee turnover, productivity, profits)<sup>3</sup>. The 12 questions that make up the tool are:

- ✓ Q1. Do you know what is expected of you at work?
- ✓ Q2. Do you have the right tools and equipment you need to do your job well?
- ✓ Q3. At work or every day, do you have the opportunity to do what you do best?

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<sup>2</sup> P.F.Drucker, *Drucker's Guiding Thoughts*, MT Business, Warsaw 2002.

<sup>3</sup> Based on M. Buckingham, C. Coffman, *First Break all the Rules*, Simon & Schuster, London 1999.

- ✓ Q4. Have you been praised for good work in the past seven days?
- ✓ Q5. Does your supervisor or anyone at work, care about you as a person?
- ✓ Q6. Is there someone at work who reinforces your development?
- ✓ Q7. Do they count your opinion at work?
- ✓ Q8. Does your company's mission/purpose make you feel that your work is important?
- ✓ Q9. Are your colleagues committed to doing quality work?
- ✓ Q10. Do you have a best friend at work?
- ✓ Q11. In the past six months, has anyone talked to you about your development?
- ✓ Q12. Have you had opportunities to learn and grow at work in the past year?

The concept of engagement is defined here by these 12 performance enhancers, and thus, by definition, an increase in engagement translates into an increase in organizational performance, as shown by numerous indicators published by the Gallup Institute<sup>4</sup>.

An engaged employee works with colleagues to increase productivity so that the cooperation benefits his company. At the same time, the company must work to develop commitment, and this requires a two-way relationship between the owner, manager, and employee. Commitment at work cannot take place if both the employer and the employee do not make due efforts to develop it. It will not be possible to achieve commitment if only one of the parties strives for it. What is important is that the employer also bears responsibility for the level of commitment of the hired employees.

Employee engagement requires management commitment in order to arouse employee commitment; their superiors also need to be fully committed to their work and let their employees feel it.

The primary reason why companies do an employee engagement survey is to find out the factors that motivate their employees to work. The basic answer they want to get is whether employees are engaged or not. Company managers want to have an accurate picture of what is important to employees and what affects their level of motivation. Asking about elements such as development, praise, compensation, benefits, or work-life balance provides valuable information about an employee's level of engagement. The Employee Engagement Survey makes these messages easy to obtain.

An essential factor in a company's intangible assets is the company's commitment to knowledge management. The main goal of knowledge

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<sup>4</sup> Harter, J. K., Schmidt, F.L., Hayes, T. L., *Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis*. Journal of Applied Psychology, 87(2), 2002, pp. 268-279.



management in a company is to increase efficiency and productivity by leveraging the knowledge and experience of employees. Other important goals are to improve communication and cooperation among employees, to improve the quality of decisions made in the company through access to up-to-date knowledge, and to increase creativity and innovation by enabling employed employees to use and develop their knowledge.

Modern companies are increasingly recognizing that proper knowledge management can bring many benefits to businesses. In order for a company to be competitive, grow, and increase its value, it must have the proper knowledge, but it must also be able to use it properly, that is, to manage it properly. Knowledge is becoming a particular category of company resources. Therefore, in order to engage an enterprise in a knowledge management system, the following steps should be taken<sup>5</sup>:

1. Provide a vision, i.e., explain to employees the purpose and benefits of implementing a knowledge management system.
2. Demonstrate the benefits, i.e., show employees how the knowledge management system will facilitate their daily work and improve work efficiency.
3. Educate and train, i.e., provide employees with adequate training to enable them to use the knowledge management system effectively.
4. Integrate into daily practice: encourage employees to use the knowledge management system, such as by including it in work plans.
5. Reward: recognize and reward employees who actively use the knowledge management system and contribute to its development.
6. Control, that is, monitor and evaluate the effectiveness of the knowledge management system and then collect feedback from employees to improve the knowledge management system.

It should be remembered that the company's commitment to a knowledge management system is crucial to the success of the company, so it is worth investing in suitable measures to increase the value of the company in the future.

In addition to the benefits to the employee, a high level of employee engagement brings a lot of additional benefits to the company. An employee who is engaged in his work generates more profit for the company and is more valued by customers. Thanks to work engagement, employee absenteeism and employee efficiency decrease, while the company's involvement in knowledge management increases the chance of its development and the proper use of the knowledge of its employees.

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<sup>5</sup> Based on: <https://langas.pl/jaki-jest-cel-zarzadzania-wiedza-w-organizacji-biznesowej>.

## 2. Enterprise value

The value of a company is continuously assessed from the point of view of the owners since they are the ones who invest capital and expect a return. The value of a company depends on both tangible and intangible elements. Examples of tangible factors include sales growth rate, operating profit margin, cost of capital, and operating and financial leverage, among others. The second major factor in the value of a company is intangible assets, such as brand value, reputation, employee knowledge, work commitment, motivation, or customer loyalty. Understanding the essence of intangible factors is vital to be able to effectively manage the company and properly combine them to implement the adopted corporate strategy. Among other things, the value of a company is derived from the discounted future income it will generate for investors contributing capital<sup>6</sup>. Depending on the financial condition and development prospects, the value of the enterprise will come from the income generated from operations or the liquidation of the company.

When talking about the value of an enterprise, it is necessary to refer to the capital that it owns and manages. An essential element of capital is intangible assets. A significant obstacle for companies in the 21st century is the acquisition and skillful use of intangible assets, as they enable companies<sup>7</sup>:

- ✓ Establish and maintain good customer relationships to ensure the loyalty of existing customers and effectively and efficiently serve new customer groups and market areas.
- ✓ Introduction of innovative products and services desired by the target customer group.
- ✓ Quick and cost-effective manufacture of products and provision of services of high quality tailored to individual customer needs.
- ✓ Motivate employees to improve skills, continuously improve processes, improve quality, and reduce response time to market needs.
- ✓ Developing information technology, databases, and information systems.

The estimated value of an enterprise is influenced by goodwill, which is determined by the sum of all the previously mentioned unique benefits, such as product/service reputation, good name, talented personnel, and management, which cannot be reliably identified but which relate to the proper functioning of the enterprise<sup>8</sup>. The value of an enterprise

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<sup>6</sup> Michalski M., *Management by value. The company from the perspective of ownership interests*, Wig Press Publishing House, Warsaw 2001, p. 15.

<sup>7</sup> R. S. Kaplan, D. P. Norton, *Strategic Scorecard. How to translate strategies into action*, Arthur Andersen, PWN, Warsaw 2001, p. 23.

<sup>8</sup> Marcinkowska M., *Shaping the value of the company*, PWN Publishing House, Warsaw 2000, p. 32.

is usually higher than the sum of the value of all its identified assets. This additional value representing the most "intangible of intangibles"<sup>9</sup> factor in value creation is goodwill or the value of assets in use. Value in use refers to the additional value that can be attributed to assets through their organization and shared use.

Goodwill, referred to as goodwill, represents the difference between the book and market value of a company. Goodwill has its origins in financial statements (cost of capital, profitability, risk) and also relates to factors not related to traditional reports. These include the following factors<sup>10</sup>: – external, e.g., access to natural resources, location, market position, competition, infrastructure, legal and tax regulations, economic environment, and labor market - internal, e.g., human capital, intellectual capital, organizational culture, vision, mission, strategy, loyal customers, product, innovation, research and development, quality, brand, trademarks, information, information systems, strategic alliances, mergers, environmental impact, advertising, public relations. Thus, in the 21st century, intangible factors, including commitment to work and commitment to knowledge management, are increasingly determining the success of a company – these are strategic resources that affect the value of a company.

Intangible assets should be considered as factors of influence on the value of the enterprise, which means that the value of intellectual capital is transformed directly into the potential of the enterprise as a whole since this value is represented by the enterprise's ability to generate profits and cash flow. In this aspect, intellectual capital can be understood as a tool to support the achievement of the expected value of the enterprise. In the process of creating intellectual capital, the most important roles are played by the knowledge, skills, and attitudes of employees as the main components of the success of this process. The greater the knowledge of employees, willingness to share knowledge, commitment to knowledge management or skills of employees, the more favorable the translation into the value of the company.

### 3. Methodology and findings

Employee engagement surveys can take different forms, but as practice shows, anonymous employee surveys give the best results. Just a dozen short questions will allow you to know the current level of employee engagement. The primary purpose of conducting surveys was to determine whether

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<sup>9</sup> Urbanek G., *Valuation of intangible assets of an enterprise*, PWE Publishing House, Warsaw 2008, p. 73.

<sup>10</sup> Skrzypek E., *Impact of knowledge management and intellectual capital on enterprise success*, Department of Quality Economics and Knowledge Management of the Faculty of Economics, UMCS, Lublin 2002, p. 42.

employee involvement in work and the company's commitment to knowledge management (intangible assets of enterprises) are elements that affect the value of Subcarpathian enterprises.

The anonymous survey was conducted in the first half of 2023 in selected 136 companies in the Podkarpacie region. The respondents were employees holding various positions. In the presented concept, a survey method was used to obtain the necessary information. The design of the questionnaire addressed to employees was based on a five-point Likert scale, where 1 means "strongly disagree," 2 - "rather disagree," 3 - "I have no opinion," 4 - "rather agree," and 5 - "strongly agree." Statistical analysis of the data was used to analyze the results.

Table 1 describes the companies that responded positively to the survey proposals. This description was based on three questions found in the metric: company size (based on number of employees), leading industry (primary type of business), and positions held.

**Table 1. Characteristics of the surveyed companies**

| <b>Segmentation criterion</b> | <b>Segment</b>                           | <b>N</b>    | <b>%</b>     |
|-------------------------------|--|-------------|--------------|
| Size                          | Micro: 0 - 9 people                      | <b>42</b>   | <b>30.88</b> |
|                               | Small: 10 - 49 people                    | <b>48</b>   | <b>35.29</b> |
|                               | Medium: 50 - 249 people                  | <b>28</b>   | <b>20.59</b> |
|                               | Large: 250 or more people                | <b>18</b>   | <b>13.24</b> |
| Leading industry              | Industrial production                    | <b>23</b>   | <b>16.91</b> |
|                               | Services                                 | <b>46</b>   | <b>33.82</b> |
|                               | Trade                                    | <b>22</b>   | <b>16.18</b> |
|                               | Sales                                    | <b>27</b>   | <b>19.85</b> |
|                               | Finance and insurance                    | <b>14</b>   | <b>10.29</b> |
|                               | Other                                    | <b>4</b>    | <b>2.94</b>  |
| Position held                 | Production, not managerial               | <b>38</b>   | <b>27.94</b> |
|                               | Sales, executive, or managerial          | <b>10</b>   | <b>7.35</b>  |
|                               | Sales, not managerial                    | <b>22</b>   | <b>16.18</b> |
|                               | Administration, executive, or managerial | <b>4</b>    | <b>2.94</b>  |
|                               | Administration, not managerial           | <b>5</b>    | <b>3.68</b>  |
|                               | Personnel Specialist                     | <b>2</b>    | <b>1.47</b>  |
|                               | Customer service position                | <b>14</b>   | <b>10.29</b> |
|                               | Marketing position                       | <b>24</b>   | <b>17.65</b> |
|                               | Finance position                         | <b>3</b>    | <b>2.21</b>  |
|                               | Designer                                 | <b>5</b>    | <b>3.68</b>  |
|                               | Technologist                             | <b>3</b>    | <b>2.21</b>  |
| Other                         | <b>6</b>                                 | <b>4.41</b> |              |

Source: Own elaboration based on research

The most significant number of 48 small enterprises, with 10 to 49 employees, were surveyed; they account for 35.29% of the surveyed population. Another 42 enterprises (30.88%) can be classified as micro, as they employ from 0 to 9 employees. Large enterprises with 250 or more employees account for 13.24% of the surveyed population. The smallest group was medium-sized enterprises employing 50-249 people and accounting for 20.59%.

Respondents from 46 companies declared that the leading industry in their enterprises is services, accounting for 33.82% of the surveyed population. Other businesses represented in large numbers in the survey are sales, 19.85%, and industrial production, 16.91%. Trade is conducted by 16.18% of the surveyed companies, and financial and insurance services are conducted by 14 (10.29%) of the surveyed companies. The remaining marginal segments are primarily companies operating simultaneously in two industries: services combined with commercial activities.

The most significant number of respondents, 38, held a non-management position in production, accounting for (27.94%), while another 24 surveyed employees held a marketing position (17.65%). Twenty-two employees held non-management positions in sales, or (16.18%). Fewer, 14 respondents (10.29%) held a customer service position. Fewer respondents, only 10 (7.35%) held a sales management position. There were five respondents each, or 3.68% of those taking part in the survey, in a design position and a non-management position in administration in the survey. There were four employees (2.94%) in a managerial position in administration. Three employees each participated in the survey in the positions of finance and technologist, respectively (2.21%). Marginally, only two people (1.47%) took part in the survey occupying personnel positions, and six employees (4.41%) held positions other than those listed in the table.

#### **4. Specific questions**

Respondents to the first question about employee engagement at work were asked to mark their answers on a five-point Likert scale.

Table 2 below shows the values of the indications and the percentages of the responses of the employees taking part in the employee engagement survey.

**Table 2. Formulations regarding employees' commitment to work**

(1 - "strongly disagree," 2 - "rather disagree," 3 - "have no opinion," 4 - "rather agree," 5 - "strongly agree")

| No. | Formulations   | 1              | 2              | 3              | 4              | 5              |
|-----|--|----------------|----------------|----------------|----------------|----------------|
| 1.  | I know what is expected of me at work  | 4<br>(2.94%)   | 8<br>(5.88%)   | 4<br>(2.94%)   | 64<br>(47.06%) | 56<br>(41.18%) |
| 2.  | I have at my disposal the tools necessary to do the job well                       | 16<br>(11.76%) | 8<br>(5.88%)   | 20<br>(14.71%) | 60<br>(44.12%) | 32<br>(23.53%) |
| 3.  | Every day at work, I have the opportunity to do what I do best                     | 15<br>(11.03%) | 23<br>(16.91%) | 10<br>(7.35%)  | 38<br>(27.94%) | 50<br>(36.76%) |
| 4.  | In the past seven days, I felt appreciated at least once                           | 44<br>(32.35%) | 41<br>(30.15%) | 8<br>(5.88%)   | 27<br>(19.85%) | 16<br>(11.76%) |
| 5.  | The boss or someone else cares about me  | 13<br>(9.56%)  | 15<br>(11.03%) | 45<br>(33.09%) | 24<br>(17.65%) | 39<br>(28.68%) |
| 6.  | The work I do gives me satisfaction  | 23<br>(16.91%) | 18<br>(13.24%) | 15<br>(11.03%) | 32<br>(23.53%) | 48<br>(35.29%) |
| 7.  | At work, my opinion counts   | 13<br>(9.56%)  | 16<br>(11.76%) | 6<br>(4.41%)   | 61<br>(44.85%) | 40<br>(29.41%) |
| 8.  | My company's mission gives me a sense that the work I do is important              | 28<br>(20.59%) | 21<br>(15.44%) | 14<br>(10.29%) | 45<br>(33.09%) | 28<br>(20.59%) |
| 9.  | I am optimistic about coming to work   | 9<br>(6.62%)   | 14<br>(10.29%) | 19<br>(13.97%) | 48<br>(35.29%) | 46<br>(33.82%) |
| 10. | At work, I am happy to share my knowledge  | 4<br>(2.94%)   | 14<br>(10.29%) | 6<br>(4.41%)   | 62<br>(45.59%) | 50<br>(36.76%) |
| 11. | In the past six months, have I talked to someone about the progress I have made?   | 32<br>(23.53%) | 28<br>(20.59%) | 40<br>(29.41%) | 26<br>(19.12%) | 10<br>(7.35%)  |
| 12. | At work, I have the opportunity for further training and development               | 4<br>(2.94%)   | 12<br>(8.82%)  | 12<br>(8.82%)  | 64<br>(47.06%) | 44<br>(32.35%) |
| 13. | The right company culture allows me to do my best work                             | 9<br>(6.62%)   | 16<br>(11.76%) | 34<br>(25.00%) | 45<br>(33.09%) | 32<br>(23.53%) |
| 14. | Without a second thought, I would recommend my company to friends looking for work | 14<br>(10.29%) | 18<br>(13.24%) | 10<br>(7.35%)  | 44<br>(32.35%) | 52<br>(38.24%) |
| 15. | When the situation demands it, I work overtime without a problem                   | 24<br>(17.65%) | 10<br>(7.35%)  | 6<br>(4.41%)   | 54<br>(39.71%) | 42<br>(30.88%) |
| 16. | The salary I receive is adequate for the work I do                                 | 40<br>(29.41%) | 34<br>(25.00%) | 2<br>(1.47%)   | 26<br>(19.12%) | 34<br>(25.00%) |
| 17. | I believe that the company he works for has a good reputation as an employer       | 6<br>(4.41%)   | 11<br>(8.09%)  | 12<br>(8.82%)  | 67<br>(49.26%) | 40<br>(29.41%) |
| 18. | I want to change the workplace where I currently work                              | 55<br>(40.44%) | 34<br>(25.00%) | 6<br>(4.41%)   | 21<br>(15.44%) | 20<br>(14.71%) |

Source: Own elaboration based on research

The values summarized in Table 2 indicate that a high percentage of respondents declared commitment to their work in various ways. In a question about the expectations of employees at work, 120 respondents (88.24%) said they knew what was expected of them at work. Only 12 (8.82%) respondents disagreed with this statement, and four respondents (2.94%) had no opinion on this.

The next question was about having the necessary tools to do the job; the answers that respondents gave indicate that 92 respondents (67.65%) had the necessary tools to do their job, and 24 respondents disagreed, which is 17.64%.

Eighty-eight (64.70%) respondents gave a positive response regarding the question about the ability of employees to do what they could do best, 38 respondents, or 27.94%, gave a negative response, meaning they disagreed with the wording, ten people (7.35%) had no opinion.

Another question in the survey concerned the appreciation of employees by superiors; only 43 respondents (31.61%) said that in the past seven days, they felt appreciated at least once. Eighty-five respondents, or 62.50%, answered this question negatively. Only eight respondents (5.88%) said they had no opinion.

When asked whether the boss or anyone else cared about the employee, 63 respondents (46.33%) agreed with the statement, 28 respondents disagreed and said that no one cared about them, and one-third or 45 surveyed employees (33.09%) said they had no opinion on the subject.

Of 80 surveyed employees (58.82%), the work they do gave satisfaction, while the work did not give satisfaction to 41 surveyed people, accounting for 30.15% of respondents, 15 respondents, or 11, 03% had no opinion on this issue.

Employee involvement at work also means counting the opinion of employed workers; in this question, 102 (74.26%) respondents gave a positive answer, 29 respondents or 21.32% said that at work, their opinion did not count, only six respondents (4.41%) had no opinion.

The next question in the survey asked about the company's mission, which gives employees a sense of the importance of the work they do. For 73 (53.68%), the company's mission gave them a sense of the importance of the work they do. Less than half, or 49 (36.03%) of the respondents, answered negatively to the above question, and 14 (10.29%) of the respondents said they had no opinion on the matter.

The next question in the survey was about employees' optimistic attitude after coming to work. This question was answered positively by 94 respondents; that is, 69.11% of the employees in the 136 companies surveyed, 23 surveyed employees (16.91%) disagreed with the statement on optimistic attitude after coming to work, and 19 (13.97%) had no opinion.

At work, employed people are willing to share knowledge in the case of 112 respondents, that is, 82.35% of the surveyed population; a small percentage did not share this statement, 18 respondents, or 13.23% of the surveyed population. Six surveyed employees had no opinion, which is (4.41%).

In a question about a conversation between a supervisor and an employee about the progress made by employees over the past six months, a large

percentage of respondents, 60 (44.12%), said such a situation had not occurred, no opinion on 40 (29.41%) of those surveyed, and only 36 (26.47%) employees confirmed that they had discussed their progress at work during this time.

A large percentage of respondents, 108 (79.41%), stated that they had opportunities for further training and development at work, 16 (11.76%) were of the opposite opinion, and 12 respondents, accounting for 8.82%, did not express their opinion on the subject.

More than half of the respondents had a favorable view of the company's appropriate work culture, which allowed employees to do their best work; 77 people said so, that is 56.62% of the surveyed collective; 25 respondents did not confirm this statement as a factor of work commitment, while 34 respondents, that is 25.00% of the respondents, had no opinion regarding the positive impact of organizational culture on doing the best work possible.

The question on recommending a company to friends looking for work received a positive response from 96 people, or 70.59% of the surveyed collective; 32 (23.53%) of the surveyed people disagreed that they would recommend the company where they work to friends looking for work, ten respondents, or 7.35% of the surveyed people, had no opinion on this issue.

If the situation required it, the hired employees would stay and carry out overtime for 96 respondents, which represented as much as 70.59% of the respondents. Less than 34 (25.00%) respondents disagreed with this statement, and 6 (4.41%) people had no opinion.

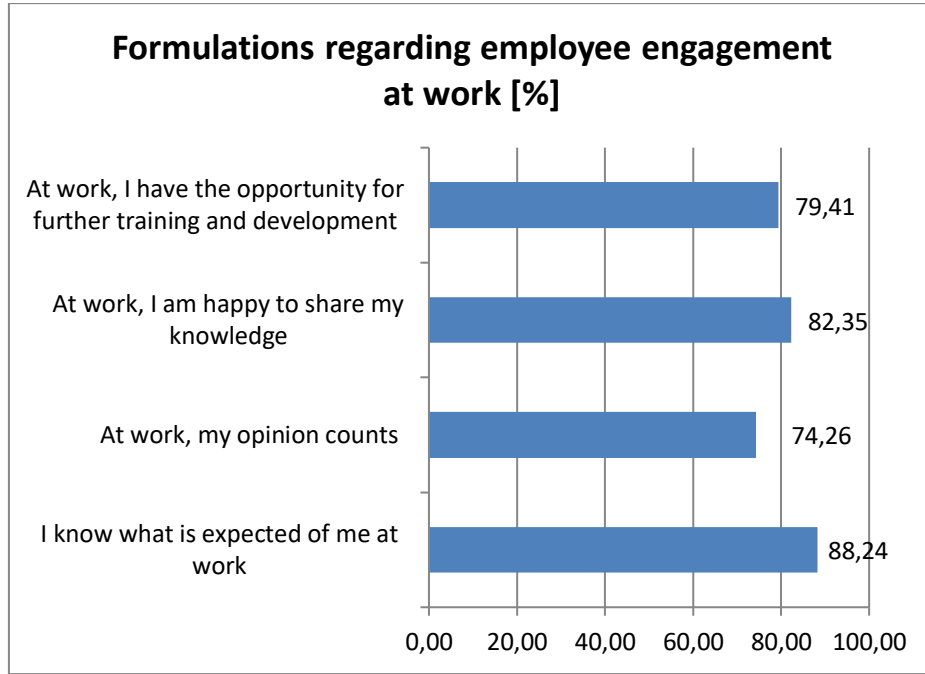
An important factor that has a significant impact on work engagement is employee compensation. In the course of the survey, employees of enterprises in the Podkarpacie region, for the most part, did not accept the salary conditions created by companies; 74 respondents, or 54.41% of the surveyed collective, said so. Salary adequate to the work was accepted by 60 (44.12%) of the respondents, while two respondents had no opinion, which represented 1.47% of the surveyed employees.

Whether the company where the respondents work has a good reputation as an employer is another question in which a large percentage, as many as 107 people, marked a positive answer to the question. It represents 78.67% of respondents. A negative answer to this question was marked by a small number, only 17 people, and this represents 12.5% of the people surveyed.

Forty-one (30.15%) of the respondents planned to change their current workplace, while a large percentage of 89 people at the time of the survey did not think about it; these people account for 65.44% of the surveyed collective.

Figure 1 below presents positive indications of employee engagement at work.





**Figure 1. Formulas for employee engagement at work (respondents' answers: "rather agree" and "strongly agree")**  
 Source: Own elaboration based on research

Table 3 below shows the values of indications and percentages of responses of employees participating in the survey on enterprise engagement in knowledge management.

**Table 3. Statements indicating a company's commitment to knowledge management**

(1 - "strongly disagree," 2 - "rather disagree," 3 - "have no opinion," 4 - "rather agree," 5 - "strongly agree")

| No. | Formulations  | 1              | 2              | 3              | 4              | 5              |
|-----|---|----------------|----------------|----------------|----------------|----------------|
| 1.  | Employees know where in the company to look for specific information  | 18<br>(13.24%) | 18<br>(13.24%) | 8<br>(5.88%)   | 51<br>(37.50%) | 47<br>(34.56%) |
| 2.  | At any time there is information about the employees with specific knowledge resources, you can contact them and use their help | 10<br>(7.35%)  | 10<br>(7.35%)  | 23<br>(16.91%) | 56<br>(41.18%) | 37<br>(27.21%) |
| 3.  | There are no barriers to the use and sharing of knowledge among employees   | 16<br>(11.76%) | 21<br>(15.44%) | 15<br>(11.03%) | 56<br>(41.18%) | 28<br>(20.59%) |

**Continued Table 3.**

| No. | Formulations  | 1              | 2              | 3              | 4              | 5              |
|-----|---|----------------|----------------|----------------|----------------|----------------|
| 4   | Employees of the company are encouraged to solve problems in teams, share knowledge with other employees  | 6<br>(4.41%)   | 13<br>(9.56%)  | 13<br>(9.56%)  | 57<br>(41.91%) | 47<br>(34.56%) |
| 5.  | Knowledge is exchanged through informal contacts, conferences, meetings, reports, and memos               | 16<br>(11.76%) | 6<br>(4.41%)   | 30<br>(22.06%) | 55<br>(40.44%) | 29<br>(21.32%) |
| 6   | Employee knowledge is constantly developed and updated through training and employee development programs | 6<br>(4.41%)   | 15<br>(11.03%) | 11<br>(8.09%)  | 51<br>(37.50%) | 53<br>(38.97%) |
| 7.  | Knowledge of employees leaving the company is passed on to their successors                               | 44<br>(32.35%) | 28<br>(20.59%) | 20<br>(14.71%) | 20<br>(14.71%) | 24<br>(17.65%) |
| 8.  | There are people in the company who are responsible for knowledge management                              | 35<br>(25.74%) | 24<br>(17.65%) | 17<br>(12.50%) | 47<br>(34.56%) | 13<br>(9.56%)  |
| 9.  | The company has a knowledge management system that includes collecting, processing, and sharing knowledge | 29<br>(21.32%) | 18<br>(13.24%) | 15<br>(11.03%) | 52<br>(38.24%) | 22<br>(16.18%) |
| 10. | There is a systematic study of employee training needs in the company                                     | 26<br>(19.12%) | 32<br>(23.53%) | 20<br>(14.71%) | 42<br>(30.88%) | 26<br>(19.12%) |
| 11. | There are employee career plans in the company  | 28<br>(20.59%) | 27<br>(19.85%) | 36<br>(26.47%) | 23<br>(16.91%) | 22<br>(16.18%) |

Source: Own elaboration based on research

The values in Table 3 indicate a high level of involvement of the surveyed enterprises in knowledge management. In the majority of enterprises, 98 respondents confirmed that they knew where to look for the information they needed; this represents 72.06% of the surveyed population, 36 (26.48%) respondents did not know where to look for the information they needed, few, only eight people had no opinion.

A significant group of respondents, 93 in number, agreed that there was information available in enterprises about people who had specific knowledge resources. Moreover, it was possible to contact them to get their help; 68.39% of the surveyed population believed so. Twenty respondents, or 14.70% of the surveyed population, disagreed with this statement, and 23 respondents (16.91%) had no opinion.

In the question on barriers to knowledge transfer between employees, a large group of respondents, 84 people, confirmed that there were no problems related to knowledge exchange between colleagues at work, which represents 61.77% of the surveyed population. A small number of 37 (27.20%) respondents believed that there were barriers to knowledge

transfer between employees. A small number of respondents, 15 people (11.03%) of the surveyed population, had no opinion.

Whether knowledge sharing and team problem-solving were encouraged among employees at companies, 104 respondents agreed, and this represents as much as 76.47% of respondents. Only 19 (13.97%) of the employees spoke out against this statement. Thirteen people had no opinion on the subject, which is 9.56% of the surveyed collective.

A large group of respondents, 84 (61.76%) employees, stated that knowledge sharing in the companies where they were employed was done through informal contacts, conferences, or other meetings, 30 (22.06%) of the surveyed employees had no opinion, only 22 respondents disagreed that knowledge sharing was done through informal meetings, notes, etc.

The next of the survey questions related to the company's involvement in knowledge management concerned employee development. A large group of respondents agreed that their knowledge was continuously developed and updated through training and development programs for employees; this was a group of 104 employees representing 76.47% of the surveyed collective, 21 (15.44%) respondents disagreed with this formulation, a small number of 11 (8.09%) respondents did not comment on employee development in companies.

More than half of the respondents disagreed with the statement that the knowledge of departing employees was passed on to successors; 72 (52.94%) of the respondents said so, 20 (14.71%) employees had no opinion, only 44 respondents agreed that the knowledge of departing employees was passed on to others, that is 32.36% of the surveyed employees.

A small group of surveyed employees, 60 or 44.12% of the surveyed collective, confirmed that there were people in charge of knowledge management in companies and 17 (12.50%) of the respondents had no opinion. In contrast, 59 employees spoke negatively to this question, which represented 43.39% of the surveyed employees.

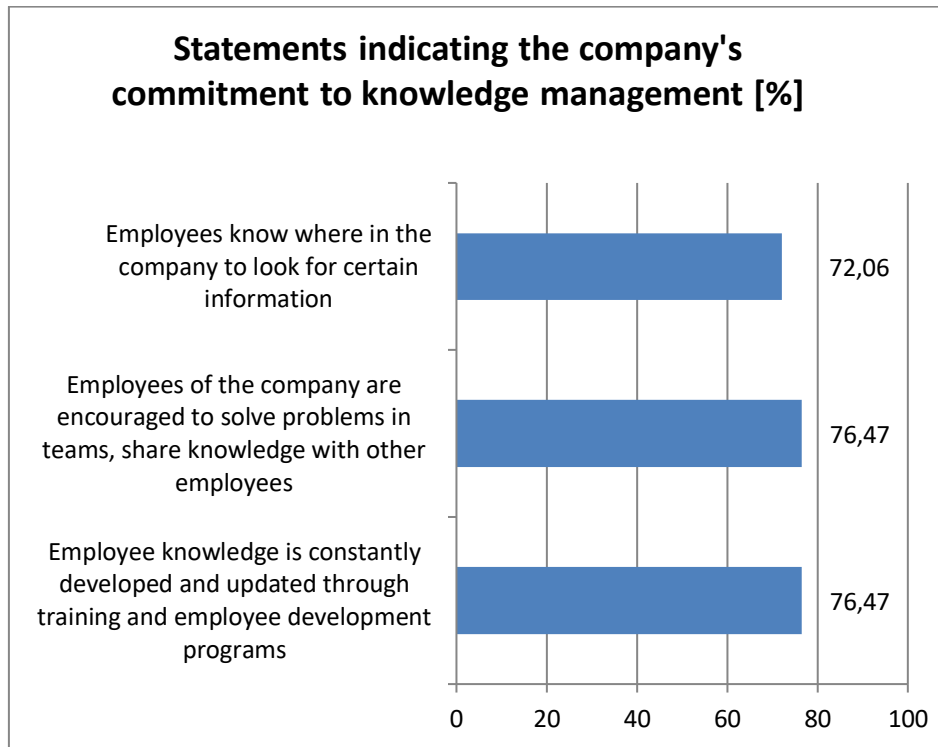
That there were knowledge management systems in the surveyed companies, which included the collection, processing, and sharing of knowledge, was stated by 74 (54.52%) respondents; 15 (11.03%) people had no opinion, and 47 respondents disagreed that there were systems in the companies that made the use of knowledge available to employees of knowledge, confirmed by 34.56% of the surveyed population.

Half of the respondents agreed with the statement that there was a systematic study of training needs in the companies they worked for; 68 (50.00%) employees said so, 58 (42.65%) had the opposite opinion, only 20 (14.71%) respondents had no opinion.

The last question concerned employee career plans. Less than half of the respondents 45 (33.09%) confirmed that there were employee career

plans in the companies where they worked, 55 (40.44%) of the respondents said that there were no such career plans in the companies where they were employed, while 36 (26.47%) did not have an opinion on this issue.

The following Figure 2 presents positive indications of the company's involvement in knowledge management.



**Figure 2. Formulations of the company's commitment to knowledge management (respondents' answers: "rather agree" and "strongly agree")**

Source: Own elaboration based on research

## 5. Research conclusions

An engaged employee does his job better, is more efficient and innovative, perceives problems in the company, and is constantly looking for solutions. It is, therefore, necessary to first of all take care that the level of his motivation to work remains high for as long as possible.

The purpose of the publication is to assess employee involvement in work and enterprise involvement in knowledge management – intangible capital factors that can significantly affect the value of Podkarpackie enterprises. Based on the results of the study and the analysis carried out, it was found that the elements of intangible capital, which are employee involvement

in work or enterprise involvement in knowledge management, have an impact on the value of Podkarpacie enterprises. Employed employees, almost 90% know what is expected of them, and this causes them to engage in work to the best of their ability, which ultimately affects the efficiency of their work and the quality of products and services. Nearly 68% of respondents confirmed that they have at their disposal the tools they need to do their jobs well; this causes employees to do their work without much interruption. More than half of the respondents – 64% at work have the opportunity to do what I can do best. Almost half of the respondents – 46% are aware that the boss or someone else cares about the employees. This situation makes employees feel important and needed, which can ultimately translate into the quality of their work. In addition, the quality of an employee's relationship with his or her supervisor – especially if his or her supervisor can help him or her grow – has a considerable impact on the level of commitment. For more than half of the respondents – 58% – the work they do gives them satisfaction, indicating that the employees surveyed are highly committed to their work. Numerous respondents – 74% confirm that their opinion counts at work. Each company has an impact on how employees feel, whether they are respected, and whether what they have to say counts, especially on important issues that are important for the development of the company. More than half of the surveyed population confirmed the fact that the mission of the company where they are employed makes them feel that the work they do is essential. Numerous respondents – 69% are optimistic when coming to work; this may mean that people who confirm this come to work satisfied and do their work with pleasure.

An extensive group of the surveyed population – 82% declare that at work, they share their knowledge with colleagues and co-workers. It makes it possible for employees to do their work even better to be more committed, and in the end, this can affect the development of the company, the value of the company, or the competitiveness of the company.

As many as 79% of the surveyed companies say they have opportunities for further training and development. The benefit of employee development is the expansion of the company's operational capabilities, which should translate into higher revenues through the acquisition of new markets, the creation of new products or services, as well as more effective customer service. Employers and managers need to remember that professional development is critical for many employees.

In addition to the increase in knowledge and skills, satisfaction also increases in such an employee. Meeting his various needs by offering development opportunities makes the employee's path clear for him to climb upward, expand his competencies, and become more and more professionally fulfilled, thus also increasing the chance of better earnings. In this way, the employee's level of commitment to work can be sustained.

A proper company culture allows 56% of respondents to do their best work. A proper workplace culture allows you to set specific rules for your company. Without any hesitation, 70% of hired employees would recommend my company to friends looking for work. The same is valid for staying at work; 70% confirm that they stay after hours without a problem at work (overtime) if the situation demands it. It is disturbing that only 44% of respondents accept the salary they receive. It is a worrying sign, as it could be linked to the departure of a valuable employee from his job in the future.

The company where the surveyed employees work has a good reputation as an employer, 78% of respondents confirm. Positive reviews encourage new investors to invest, customers to buy, and future employees to work. Products with a reputation among consumers are more likely to be recommended to friends and family, leading to maximization of sales. More than half of the surveyed collective – 65% – do not confirm that they want to change the workplace where they currently work.

Enterprise commitment to knowledge engagement is one of the intangible assets that affect the operation and value of the companies surveyed. The majority of employees – 72% of those surveyed know where in the company to look for specific information. A large number of respondents – 68% – confirm that information about employees with specific knowledge resources is available at any time; they can be contacted, and their assistance can be used.

The absence of barriers to knowledge sharing and utilization among employees is one of the factors that affect the smooth operation of a company. Lack of trust among 76% of surveyed employees is a barrier to knowledge sharing, and 76% of surveyed employees confirm that team-based problem-solving and knowledge sharing with other employees is encouraged in companies. For 61% of respondents, knowledge sharing takes place through informal contacts, conferences, meetings, reports, and memos. Employee knowledge is constantly developed and updated through training and employee development programs, 76% of respondents confirm. At the same time, 52% of respondents say that the knowledge of employees who leave the company is not passed on to their successors. More than half of the respondents – 54% – say that companies have knowledge management systems in place, which include collecting, processing, and sharing the knowledge. In the surveyed enterprises, according to 50% of employees, there is a systematic study of employees' training needs.

An engaged employee is the most valuable asset for an employer because engagement is more than job satisfaction - a dedicated employee not only performs his or her job one hundred percent but also approaches his or her duties with enthusiasm. Conscientious and competent employees increase productivity, develop innovations, reduce conflicts and absenteeism, or increase the value of the company. Employees who are emotionally

connected to the company will not fail in crises. Employee engagement is and will continue to be a method to increase the efficiency of the organization.

The above analyses indicate that the involvement of employees in their work and the company's commitment to knowledge management is at a very high level. The factors indicated above are nothing more than the intangible capital of employees, which the employed workers hold. Moreover, it is systematically developed. It is the employed employees and the capital they hold that create the added value of enterprises and influence the functioning, development, and value of Podkarpackie companies.

### **Conclusions**

Employee engagement at work is the result of positive relationships that prevail between employees and managers, and it is a manifestation of the positive organizational culture found in the surveyed companies, as evidenced by adequate working conditions, good relationships between employees, development opportunities, or sufficient compensation for work. The involvement of enterprises in knowledge management is mainly knowledge exchange, which takes place through informal contacts, meetings, and conferences.

Engagement survey is an ongoing process; even if the results are great, such survey should be continued. I do not think anyone needs to be convinced that engaged employees are the real treasure of any company. When employees feel valued and have a sense of influence on the company's operations, they will not only do their jobs better but also motivate other employees and actively contribute to the company. With the right approach to the issue of engagement by managers, it is not only possible to increase the effectiveness of the company's operations by allowing the employees hired to use their potential, knowledge, creativity, and experience, but most importantly, to obtain a loyal staff that will result in an increase in the value of the company due to the staff's commitment to work and the company's commitment to knowledge management.

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## ARTICLES

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### ADEQUACY OF FOREIGN RESERVES OF NATIONAL BANK OF POLAND

#### Abstract

The paper discusses the policy of managing foreign exchange reserves in Poland. The aim is to assess changes in the size and adequacy of official reserve assets in Poland from 2004 to 2023. The main stress is put on the assessment of adequacy of official reserve assets with the most common indicators. The paper is based on the international literature and statistical data. Main sources of necessary data were taken from publications delivered by the International Monetary Fund, the World Bank, the Statistic Poland and the National Bank of Poland.

**Keywords:** foreign reserves, central bank, international currencies.

**JEL classification:** E44, E58, F32.

**Paper type:** Theoretical research article.

#### Introduction

The policy of managing foreign exchange reserves is one of the key elements of the policy conducted by central banks, having a significant impact on the functioning of the modern international monetary system. Foreign exchange reserves are foreign assets of central banks denominated in foreign currencies and special drawing rights (SDRs), which, if necessary, enable currency interventions or the provision of foreign currencies to domestic banks in crisis situations (Rybiński, 2011, p.229). These assets, together

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with the reserve position in the International Monetary Fund (IMF) and gold, constitute the official reserve assets. The reserves are part of the national wealth and are most often located in the central bank. They were originally important for countries with currencies with fixed exchange rates, providing a buffer necessary to maintain this system. However, they also act as an important stabilizer in countries with floating exchange rates, especially in the case of emerging economies. Countries accumulate foreign exchange reserves to prevent unfavorable changes in the balance of payments. They are also a side effect of interventions carried out to stabilize the exchange rate (Domingez, Hashimoto, Ito, 2011, pp. 2-3). Security and stabilization of the exchange rate during asymmetric and temporary shocks are the basic motives for maintaining reserves in both developing and developed countries. Foreign reserves, at an adequate level, are necessary for financial security, including the currency security of the state. They influence the credibility of the state and indirectly also the cost of financing the state's debt on international markets. In developing countries, they are also held to prevent liquidity crises (Zaleska, 2020, s. 268-279).

The literature indicates four main aims of foreign exchange reserves. They should: bring profits for the state budget and the central bank, guarantee the maintenance of liquidity in the event of a payment deficit in the balance of payment, ensure the stability of the functioning of the financial market and ensures an adequate level of creditworthiness of the country (Arslan, Cantú, 2019, p. 2-10).

This paper is a review and its purpose is to assess changes in the size and adequacy of official reserve assets in Poland from 2004 to 2023. Due to the breadth of the problem, the assessment does not take into account changes in the structure of the portfolio of these assets. The paper is based on the international literature and statistical data. Main sources of necessary data were taken from publications delivered by the National Bank of Poland, the International Monetary Fund (IMF) and the World Bank.

### **1. The optimal level of foreign exchange reserves – a literature review**

According to Moghadam, Ostry and Sheehy (2011) the appropriate amount of official reserves should depend on the characteristics of a given country, directly reducing the pressure against which reserves are held. For most developing markets, which are exposed to significant capital outflows during periods of increased pressure on the national currency, simple rules should be complemented by a more comprehensive analysis and consideration of the possibility of using the IMF's flexible credit line. Feldstein (1999, p. 22) and Greenspan (1999) believe that in the case of emerging economies it is beneficial to maintain excessive foreign exchange reserves, which will be an important protection against potential currency crises. Their conclusions are derived from the analysis of the causes and course of the Asian financial

crisis of 1997-1998. It should be noted, however, that determining their optimal level is a difficult task and does not always end in success (Konopczak 2014, p. 469). J. Nugée (2011, p. 13) believes that while managing foreign exchange reserves, the most important thing is their safety, because they are part of the national wealth. This means that their profitability is less important, but it systematically increases, especially in the context of a visible raise in the value of reserve assets.

The main indicator assessing the adequacy of the amount of foreign exchange reserves is the ratio of foreign exchange reserves to short-term foreign debt. This indicator, also called the Greenspan-Guidotti rule, shows a country's ability to service short-term external debt in during a sudden deterioration in external financing conditions. Typically, a country is considered safe in this aspect if its foreign exchange reserves exceed the value of the mentioned debt (Pineau, Dorroccini, 2006, p. 30). The level of foreign exchange reserves will also be optimal if its size in relation to the total foreign debt is between 30% and 50% (Skopiec 2016, p. 226). The Greenspan-Guidotti rule is the main, but not the only indicator of the adequacy of foreign exchange reserves. Additionally, two more indicators are often used:

- the ratio of foreign exchange reserves to the volume of imports - shows the number of months for which a country can maintain its level of imports if all other capital flows disappear; a rule assumes that the country should maintain foreign exchange reserves allowing it to maintain a constant level of imports for the next three or four months (Pineau, Dorroccini, 2006, p. 31);
- the ratio of foreign exchange reserves to the size of the broadest monetary aggregate (M2) - shows the degree of coverage of domestic money with funds in foreign currencies, it is assumed that 30% coverage ensures the security of the domestic economy, and a drop below 10% causes an increase in the threat of devaluation of the national currency (Barwiński, et al., 2003, p. 8); The IMF considers 20% to be a typical, safe level in developing economies (IMF, 2016, p. 23).

Less important indicator, but also appearing in the literature is the ratio of foreign exchange reserves to GDP. It relates reserves to the overall level of economic development of a country and is useful for countries with stable finances and a healthy banking system (Barwiński, et al., 2003, p. 8).

In the literature relating to measures of the adequacy of foreign exchange reserves, several models of the volume of foreign exchange reserves have also been proposed to estimate their optimal level (Gatnar, 2013, p. 23-32). One of them is Assessing Reserve Adequacy metric (ARA) proposed by the IMF (2011, p. 12-15). ARA metric measures a broad set of risks reflecting potential drains on the balance of payments and has four weighted

components: short-term external debt, M2, export income and other liabilities. The last two components reflect potential terms-of-trade shocks and other portfolio outflows, respectively. The measure is adjusted if the country is dollarised, if it has capital controls or if it is a commodity exporter/importer. The benchmark is between 100% and 150% reserve cover (Arslan, Cantú, 2019, p. 2-10).

Although foreign exchange reserves are an important instrument for preventing currency crises, there is a limit to their amount, which is necessary to effectively prevent possible market turbulence. This is important because maintaining too high foreign exchange reserves generates additional costs for the central bank. The main cost is the need to sterilize the increase in the supply of liquid reserves in the banking system, which is the result of the increase in the value of foreign exchange reserves. Rybiński (2011, p. 232) points out that an additional cost of having too large foreign exchange reserves is the lost GDP growth. It occurs when the central bank conservatively invests only in safe debt securities generating a lower rate of return than it could achieve from investing in other financial instruments, which is why some countries also invest in equity securities through Sovereign Wealth Funds. This means that too high foreign exchange reserves have a negative impact on the profit of the central bank and, consequently, cause a decline in the value of pro-development investments that could be financed from higher profits, e.g. transferred to the state budget. Additionally, too high foreign exchange reserves may also: force the economy to maintain higher than possible interest rates, limit the effectiveness of the mechanism of transmitting monetary impulses to the real economy, make the economy dependent on the politics and economic situation in countries/areas issuing international currencies, and cause political temptation related to the desire to use part of foreign exchange reserves for fiscal expansion in the country (Redo, 2013, pp. 196-197).

## **2. Amount and currency structure of NBP foreign exchange reserves**

The National Bank of Poland (NBP) is responsible for managing Polish foreign exchange reserves. Redo [2014, p. 198] draws attention to the lack of detailed regulations contained in legal acts relating to the method and principles of managing foreign exchange reserves in Poland. This results from the constitutional guarantee of the central bank's independence also in the management of foreign exchange reserves, as they are included in its assets and the revenues generated from these activities constitute the NBP's income. Detailed rules for maintaining and managing foreign exchange reserves are specified in internal acts, and the body responsible for these activities is the Management Board. Legal standards relating to the management of foreign exchange reserves by the NBP are consistent with the standards set by the IMF. Due to the nature of the foreign exchange reserves management process, details regarding decisions and financial

instruments used in the implemented strategy are not made public [Redo, 2014, p. 208]. Therefore, the analysis of the size and structure of official reserves can only be conducted on the basis of general information provided by the NBP.

In October 2007, the NBP adopted a long-term strategy for managing foreign exchange reserves. The most important features of this process were minimizing investment risk and maintaining appropriate liquidity. The following actions were taken to improve the reserves management process: currency diversification and expansion of investment instruments; introducing advanced methods of global asset allocation; improving the decision-making process and developing investment risk management methods [NBP, 2009, p. 60].

The official reserve assets of the National Bank of Poland include: gold, SDRs, the IMF reserve position, and foreign currency reserves. The NBP authorities view gold as a hedge against economic and geopolitical risks, therefore they decided to constantly increase its share, just like in the others advanced countries and emerging markets especially those which face additional geopolitical risk (Arslanalp, Eichengreen, Simpson-Bell, 2023, p. 29). In May 2024, gold accounted for approximately 13,5% of the value of reserves, SDRs accounted for approximately 2,7%, and the IMF reserve position accounted for 0,73% (Table 1).

**Table 1. Structure of NBP reserve assets in May 2024**

| Officialreserveassets   | Value of reserves in PLN bn | Share in % |
|-------------------------|-----------------------------|------------|
| Gold                    | 111                         | 13,55      |
| SDR                     | 22                          | 2,69       |
| IMF reserveposition     | 6                           | 0,73       |
| Foreigncurrencyreserves | 680                         | 83,03      |
| Total                   | 819                         | 100        |

Source: (NBP, 2024a)

In 2004-2023, the amount of NBP reserve assets systematically increased (Table 2) in Polish zloty (from PLN 110 bn to PLN 763 bn) as well as in US dollars (from USD 43 billion to USD 95 billion) and euro (from EUR 36 billion to EUR 87 billion). At the beginning of the analyzed period, the increase in the value of reserves was influenced primarily by the positive balance of external flows supported by the inflow of funds from the European Union. Additionally, in 2008-2009 and in 2014, the element increasing the value of reserves expressed in PLN was the depreciation of the national currency, especially in relation to the US dollar, and in 2005-2011 also a significant increase in the price of gold. It should be noted that in the analyzed period only in 2013 there was a decrease in the value of reserves expressed in each currency (PLN, USD, EUR). This was the result

of a combination of unfavorable trends on financial markets, which resulted in a decline in external flows and prices of securities and gold [NBP, 2014, p. 58]. In 2008, due to the financial crisis, which caused, on the one hand, a significant weakening of the Polish zloty and, on the other hand, a visible increase in the demand for foreign exchange reserves, their value in the currencies of financial instruments decreased noticeably. Similar changes appears in 2014-2015 (Table 2). Changes in the value of reserves in 2014 resulted mainly from the strengthening of reserve currencies against the euro and Polish zloty, increases in securities prices and interest income from reserve investments. Changes in the value of reserves in 2015 were primarily the result of the strengthening of the US dollar and pound sterling against the euro and Polish zloty, income from reserve investment and the positive balance of external flows [NBP, 2016, p. 47]. In 2017, the official reserve assets of the National Bank of Poland decreased from PLN 478 billion to PLN 394 billion [NBP, 2018, p. 48]. This was primarily the result of limited involvement in reverse repo transactions concluded together with repo as part of the investment of foreign exchange reserves. In the following years, the value of reserves systematically increased to PLN 763 billion in 2023. This means an almost sevenfold increase compared to 2004 (Table 2).

**Table 2. NBP official reserve assets, in zloty, US dollar and euro in 2004-2023 (in bn)**

| <b>Year/Currency</b> | <b>PLN</b> | <b>USD</b> | <b>EUR</b> |
|----------------------|------------|------------|------------|
| 2004                 | 110        | 37         | 27         |
| 2005                 | 139        | 43         | 36         |
| 2006                 | 141        | 48         | 37         |
| 2007                 | 160        | 66         | 45         |
| 2008                 | 184        | 62         | 44         |
| 2009                 | 227        | 80         | 55         |
| 2010                 | 277        | 90         | 74         |
| 2011                 | 334        | 98         | 76         |
| 2012                 | 338        | 109        | 83         |
| 2013                 | 320        | 106        | 77         |
| 2014                 | 352        | 100        | 83         |
| 2015                 | 370        | 95         | 87         |
| 2016                 | 478        | 114        | 108        |
| 2017                 | 394        | 113        | 95         |
| 2018                 | 440        | 117        | 102        |
| 2019                 | 488        | 128        | 115        |
| 2020                 | 580        | 154        | 126        |
| 2021                 | 674        | 166        | 147        |
| 2022                 | 734        | 167        | 156        |
| 2023                 | 763        | 194        | 175        |

Source: (NBP, 2024b)

In the world ranking of countries with the largest foreign exchange reserves, Poland is classified in the top twenty-five. Since 2004, the pace of accumulation of NBP foreign exchange reserves has remained consistent with the global trend. The main sources of this accumulation were different from those typical of most emerging economies. In Poland this increase resulted not from the currency interventions, but mainly from the positive balance of external flows, coming largely from the inflow of funds from the European Union. A significant part of these funds was converted into PLN by the NBP and thus increased the level of foreign exchange reserves. The result from investing them also contributed to the increase in NBP reserves [Berłowska, Jabłecki, 2022].

At the same time as the change in the amount of reserve assets, the currency structure also changed (Table 3). Until 2006, the main currencies in which reserve assets in Poland were denominated were: the US dollar, the euro and British pound. Based on the analysis of global macroeconomic prospects and forecasts of developments in global financial markets carried out at the end of 2006, the NBP decided to start the process of changing the currency structure by reducing the importance of currencies previously used in favor of "raw material" currencies. In 2007, the NBP decided to start the process of diversification of the currency structure of reserves, adding the Australian dollar to the used currencies (at the expense of the US dollar). Continuing the diversification of the currency structure of reserves, in 2008 the Norwegian krone was included in the strategic benchmark at the expense of limiting the share of the euro. Due to the potential appreciation of the yen, the NBP also allowed the possibility of starting investments in this currency. However, the Japanese currency did not appear in the statistics. In 2013, the NBP continued to diversify the currency structure of reserves by starting investments in assets denominated in New Zealand dollars. The introduction of Australian and Norwegian currencies into the structure took place at the expense of assets denominated in the US dollar and the euro, while the introduction of the New Zealand dollar resulted in a decrease in the share of reserves denominated in British currency (Table 3). In the following years, there were only shifts in importance between currencies, depending on macroeconomic conditions. In 2023, the currency structure of the NBP reserves was as follows: 41% USD, 20% EUR, 12% GBP, 10% CAD, 8% AUD, 6% NOK and 3% NZD.

**Table 3. Currency structure of the NBP benchmark in 2004-2023 (%)**

| Year/Currency | USD | EUR | GBP | CAD | AUD | NOK | NZD |
|---------------|-----|-----|-----|-----|-----|-----|-----|
| 2004          | 50  | 40  | 10  | 0   | 0   | 0   | 0   |
| 2005          | 50  | 40  | 10  | 0   | 0   | 0   | 0   |
| 2006          | 45  | 40  | 10  | 0   | 0   | 0   | 0   |
| 2007          | 40  | 40  | 15  | 0   | 5   | 0   | 0   |
| 2008          | 40  | 35  | 15  | 0   | 5   | 5   | 0   |
| 2009          | 40  | 35  | 15  | 0   | 5   | 5   | 0   |
| 2010          | 38  | 35  | 13  | 0   | 8   | 6   | 0   |
| 2011          | 36  | 32  | 15  | 0   | 10  | 7   | 0   |
| 2012          | 36  | 32  | 15  | 0   | 10  | 7   | 0   |
| 2013          | 36  | 32  | 12  | 0   | 10  | 7   | 3   |
| 2014          | 36  | 32  | 12  | 0   | 10  | 7   | 3   |
| 2015          | 39  | 29  | 12  | 0   | 10  | 7   | 3   |
| 2016          | 44  | 27  | 12  | 0   | 8   | 6   | 3   |
| 2017          | 44  | 27  | 12  | 0   | 8   | 6   | 3   |
| 2018          | 44  | 27  | 12  | 0   | 8   | 6   | 3   |
| 2019          | 51  | 20  | 12  | 0   | 8   | 6   | 3   |
| 2020          | 51  | 20  | 12  | 0   | 8   | 6   | 3   |
| 2021          | 41  | 20  | 12  | 10  | 8   | 6   | 3   |
| 2022          | 41  | 20  | 12  | 10  | 8   | 6   | 3   |
| 2023          | 41  | 20  | 12  | 10  | 8   | 6   | 3   |

Source: (NBP, 2024b)

The process of diversification of reserves led to a significant decline in the importance of the American and European currencies over the decades. In 2003-2023, the share of the US dollar decreased from 50% to 41%, and the share of the euro from 40% to 20%. However, USD remained the most important currency, as it is in the other central banks of countries with strong economic and military ties to the United States (Weiss, 2022, p. 25). Douglass, Goldberg, and Hannaoui (2024) claim that geopolitical considerations play a role in US dollar shares, though, surprisingly, they reduce its share mainly when country reserve portfolios are already large enough to meet their potential foreign currency liquidity needs.

### 3. Adequacy of foreign exchange reserves in Poland

For assessing the adequacy of foreign exchange reserves in Poland, six indicators were analyzed: foreign exchange reserves as a % of the M2 monetary aggregate, foreign exchange reserves expressed in months of imports, foreign exchange reserves as a % of total external debt, foreign exchange reserves as a % of short-term debt, foreign exchange reserves as a % of GDP and ARA metric. In 2004-2023, the values of all the above indicators mostly remained above the minimum reference values (Table 4).



**Table 4. Macroeconomic indicators determining the adequacy of Polish currency reserves in 2004-2023**

| Year | Foreign exchange reserves as a % of the M2 | Foreign exchange reserves expressed in months of imports | Foreign exchange reserves as a % of total external debt | Foreign exchange reserves as a % of GDP | Foreign exchange reserves as a % of short-term debt | ARA metric |
|------|--|--|---|---|---|------------|
| 2004 | 29,81                                      | 4,07   | 28,28   | 11,8                                    | 200,00  | 0,98       |
| 2005 | 33,49                                      | 5,09   | 32,10   | 14,0                                    | 224,19  | 1,07       |
| 2006 | 29,31                                      | 4,29   | 28,54   | 13,2                                    | 201,43  | 0,95       |
| 2007 | 29,14                                      | 4,21   | 28,17   | 13,5                                    | 144,15  | 0,95       |
| 2008 | 27,88                                      | 4,44   | 25,38   | 14,3                                    | 120,26  | 0,89       |
| 2009 | 31,75                                      | 5,88   | 28,41   | 16,5                                    | 145,51  | 1,04       |
| 2010 | 35,74                                      | 6,20   | 29,47   | 19,3                                    | 192,36  | 1,12       |
| 2011 | 38,66                                      | 6,43   | 30,23   | 21,5                                    | 218,30  | 1,16       |
| 2012 | 37,56                                      | 6,26   | 29,71   | 20,9                                    | 256,06  | 1,17       |
| 2013 | 33,33                                      | 5,85   | 27,87   | 19,6                                    | 226,95  | 1,06       |
| 2014 | 33,68                                      | 6,00   | 28,14   | 20,7                                    | 264,66  | 1,11       |
| 2015 | 32,31                                      | 6,00   | 28,64   | 20,6                                    | 244,44  | 1,10       |
| 2016 | 38,06                                      | 7,30   | 33,64   | 25,8                                    | 219,27  | 1,27       |
| 2017 | 30,01                                      | 5,37   | 29,54   | 19,9                                    | 220,11  | 1,07       |
| 2018 | 30,81                                      | 5,44   | 32,26   | 20,7                                    | 229,17  | 1,14       |
| 2019 | 31,42                                      | 5,75   | 36,17   | 21,3                                    | 228,04  | 1,23       |
| 2020 | 31,97                                      | 6,86   | 40,87   | 24,8                                    | 254,38  | 1,38       |
| 2021 | 34,14                                      | 6,11   | 45,42   | 25,6                                    | 268,52  | 1,49       |
| 2022 | 35,32                                      | 5,15   | 45,03   | 23,9                                    | 255,75  | 1,48       |
| 2023 | 33,77                                      | 5,89   | 45,22   | 22,4                                    | 256,90  | 1,49       |

Source: Own compilation and calculation based on data from (GUS, 2024), (NBP, 2024b), (IMF, 2024), (World Bank, 2024).

In the analyzed period, the degree of coverage of foreign exchange reserves by the M2 aggregate ranged from 27,88% in 2008 to 38,06% in 2016. This means that this value remains above the minimum level of 10%, which is indicated in the literature as crucial for the materialization of the threat of devaluation of the national currency and remains well above the typical level for developing economies (20%) at all analyzed years. The value of Polish foreign exchange reserves is higher than the value of 3 months of imports, which is indicated as the reference value. In 2004-2023, this indicator ranged from over 4 months in 2004 to over 7 months in 2016, which means that the level of this indicator is sufficient. The coverage of Polish short-term debt with foreign exchange reserves remains at a safe level, in most years significantly exceeding it. In particular in 2012-2023 foreign exchange reserves

covered short-term foreign debt more than twice. Such a favorable development of this indicator is mainly due to the systematic extension of the maturities of foreign debt. The lowest level, but still sufficient, was in 2008 during the Great Financial Crisis (120,26%). Concerning total debt, it is, in almost entire analyzed period, covered by foreign exchange reserves at the appropriate level. In 2004-2018 fluctuated around the lower band, with a negative deviation in 2008, whereas in 2019-2023 the indicator grew systematically, reaching 45,22%. This is another indicator confirming the optimal level of foreign exchange reserves in Poland. Additionally the ratio of foreign exchange reserves to GDP is also at an appropriate level as well as ARA metric, which in 2009-2023 is within the range proposed by the IMF.

### Conclusions

All analyzed indicators show an optimal level of potential resistance of the Polish economy to sudden deterioration in external financing conditions, and the level of NBP foreign exchange reserves is appropriate. This means that the central bank does not incur excessive costs of maintaining foreign exchange reserves. It should be noted, however, that in the case of developing economies maintaining too high foreign exchange reserves may be important. The final assessment of the adequacy of the amount of official reserves should depend on the characteristics of a given country and a separate assessment of the costs of maintaining above-optimal foreign exchange reserves compared to the potential costs of a currency crisis in its economy.

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## ARTICLES

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**Wojciech Sońta**<sup>1</sup>

### **CHOICE OF BURIAL. A COFFIN OR AN URN?**

#### **Abstract**

The aim of the article is to investigate a reason why the traditional burial of dead people to coffins is more common in Poland than cremation bodies to urns. It has an influence for savings, mainly in use of the cemetery land, because space in the Polish cemeteries is decreasing due to a large number of the traditional burials. Therefore, the research analysis was formulated that namely changes in the area have been observed during the last twenty years of the 21<sup>st</sup> century and the forecasts indicate that it will be changing by moving away from the traditional burial in favour for the urn burial. To prove such formulated the research hypothesis a number of legal-organizational, religious, cultural and etc. conditions must be considered and examined. It has been tried to highlight all the conditions in the article.

**Keywords:** burial, coffin, urn, cremation, cemetery area.

**Jel Classification Codes:** Z 18, Z 120.

**Paper type:** Theoretical research article.

#### **Introduction**

One of the founding fathers of the United States of America – Benjamin Franklin, is attributed the commonly known saying that the certainties in this world are only death and taxes (<https://wikiquote.org/wiki/>). It is impossible to disagree with the first part of the saying, because death is inherent of every person's life.

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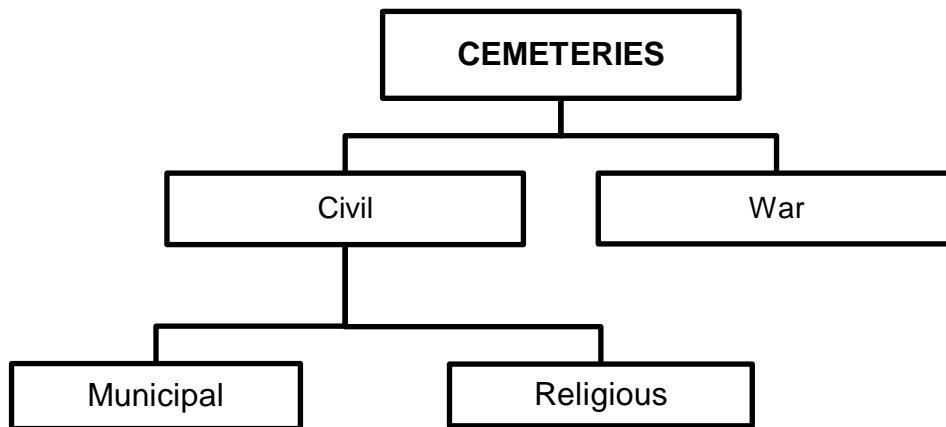
Many Polish cities are struggling with lack of places in cemeteries and a lot of people have a problem with purchase of a burial place. Authorities of the cities have been wondering how to solve the issue from many years. One of the solutions is building so-called 'columbaria', which are concrete walls in which the urns with cremated corpses or urn graves are located. However, if we prefer to bury ashes of a deceased in the ground, an urn monument is an excellent solution. The cremation is recommended to properly manage the cemetery area, however for many Polish people such form of burial is unacceptable, because it is often associated with the World War II. Therefore, the question arises: will the incineration be the main funeral trend in the coming years?

Many people decide as already mentioned for burials in the so-called columbaria. These are walls of memory, in which there are special niches where ashes of a deceased are placed. Such niche can accommodate several urns, so it is a definite space and cost saver related to the installation of the monument. However, the urn monument enables possibility of individual visits in the cemetery. For example, during All Souls' Day one can stay right next to the monument of a deceased person and do not crowd in front of the columbarium. Additionally, ones can place candles and flowers on the urn tombstone and freely shape its appearance by purchasing, for example tombstone accessories.

As the research has shown, many people are interested in the form of burial in a family grave. To meet the expectations of the customers, funeral homes also offer family urn tombstones, which allow that at least two urns can be placed in the grave. It is a very economical solution both in terms of cost and saving space in a cemetery. This kind of the grave is also quite good during family reunions. Then it is not necessary to move around entire cemetery and a family can focus only on one grave. Will the above-mentioned advantages be confirmed by the conducted research shown later in the study?

### **1. Legal – organizational approach**

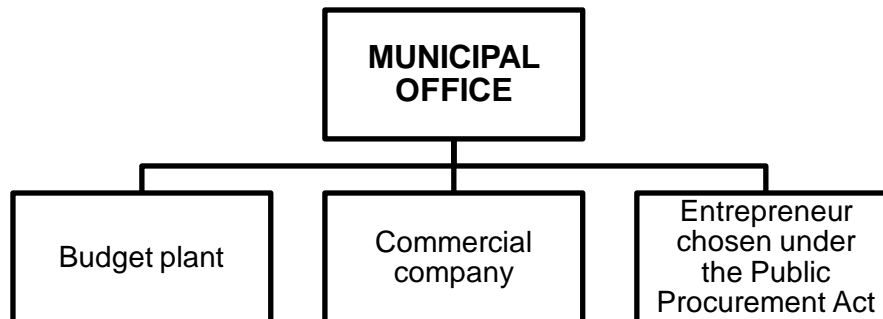
Based on the applicable regulations and the actual situation, the division of cemeteries can be presented as in the below chart.



**Figure 1. Types of cemeteries**

The total number of functioning cemeteries in Poland is 15.5 thousand and 1880 of them are municipal cemeteries (Management of the municipal cemeteries, 2016). The subject of the research, based on which there will be formulated conclusions will be the municipal cemetery in Radom in Firlej. A decision to establish or extend a municipal cemetery is made by the commune council on which area it can be established or extended. According to the act, municipal cemeteries are basically established in every commune (Journal of Laws 2023, position 40). Therefore, the question arises: where should a person of a different religion or an atheist be buried in towns where there is not any municipal cemetery? The applicable law regulations impose this obligation on management of a religious cemetery.

Supervision of the compliance of acts' provisions and executive acts are held by commune heads, mayors, presidents and in the field of sanitary matters – local sanitary inspectors. The provisions of the municipal government act provide a basis for taking decisions by the municipal council about rules and procedure of using the municipal cemetery being a public utility facility.



**Figure 2. Management of the municipal cemeteries**

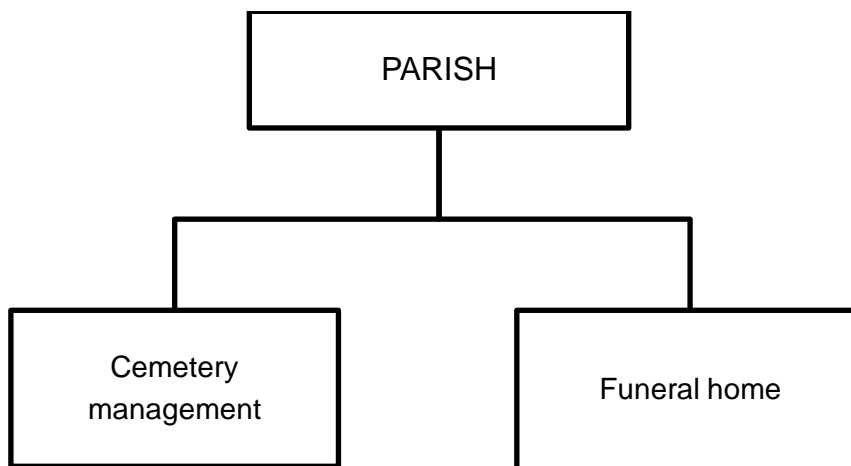
Most often, administrative duties are carried out by the municipal offices, budget plants, management boards of commercial law companies and also entrepreneurs chosen under the public procurement law (Journal of Laws of 2023, position 1605). Entrusting tasks to external entities do not release the municipal authorities from their obligations of supervising and controlling. One of the problems is underdetermination of scope of cemetery services by the legislator what significantly complicates reliable calculation of fees and thus promotes recognitions. Audits carried out by the Supreme Audit Office revealed offenses in the field of management of the municipal cemeteries (Dudek, 2017, page 93).

1. Revenues received from cemetery fees were allocated by the entities managing the necropolis on their own business instead of transfer them to the municipalities on the account of budget revenues.
2. Ineffective control supervision of the municipal authorities related to performance of tasks by the cemetery managers.
3. The fees charged for a period of 20 years for a double grave were from 20 PLN up to 1980 PLN what is tool large range.
4. There were not stated any cases of failure to provide burial places in the municipal cemeteries despite lack of free places for tombs.
5. The necropolises constantly fill up because people die and soon there can be lack of places on some of them.
6. Lack of appropriate areas that meet the required conditions described in the legal regulations is an obstacle in planning cemetery's investments.
7. Conclusion of agreement is related with participation in costs of construction and maintenance of such investment what can significantly reduce municipal budgets.



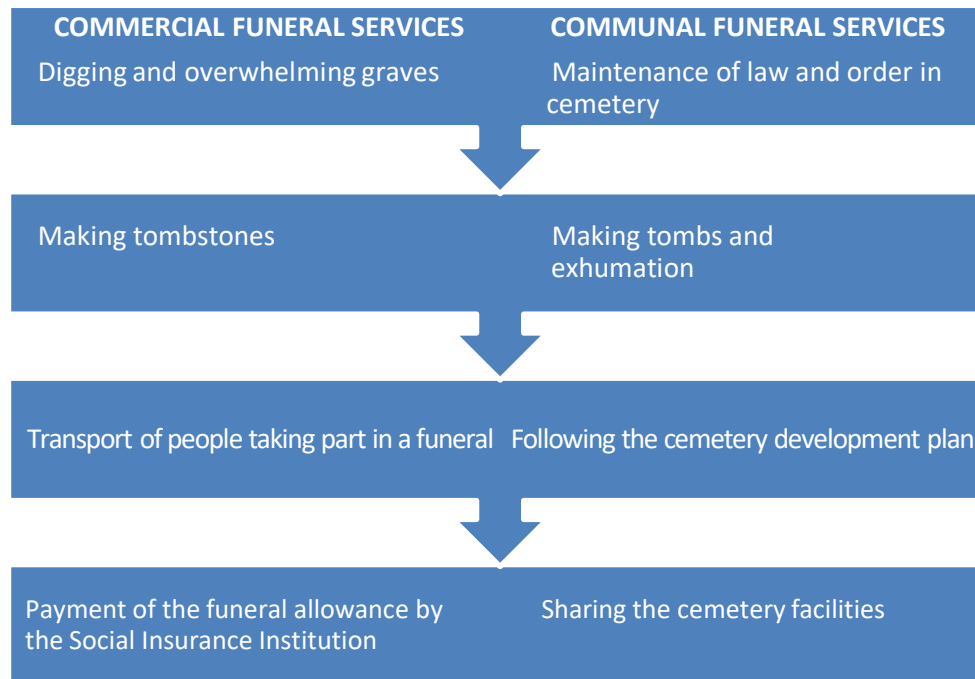
8. The applicable statutory regulations do not fulfil well their function because the regulations are outdated and not adapted to the current situation on the funeral services market.
9. The rules of management of old cemeteries where burials have not taken place for many years remain unregulated.

Maintenance and management of the municipal cemeteries constitutes a commune's own task. The local governments are obliged to decide on rules to use of facilities and devices, prices and fees' levels for services and also to ensure sanitary and technical conditions of the cemeteries and to finance expenses for their maintenance (Sońta, 2010).



**Figure 3. Entities preparing place and services related to funeral**

Generally speaking, the funeral services are commercial in nature are they are performed by a funeral home while their municipal character is performed by the cemetery management. The division of the services is presented in the figure 4. The cemetery management is responsible for preparation of a burial place. However, the funeral services are provided by a funeral home. The burial is celebrated by a parish priest. Additional contacts for a close person to the deceased are the Social Insurance Institution (payment of funeral allowance), a catering establishment organizing wakes, a transport company for people taking part in the funeral ceremonies. Quite often the mentioned above services are included in the funeral home's package.



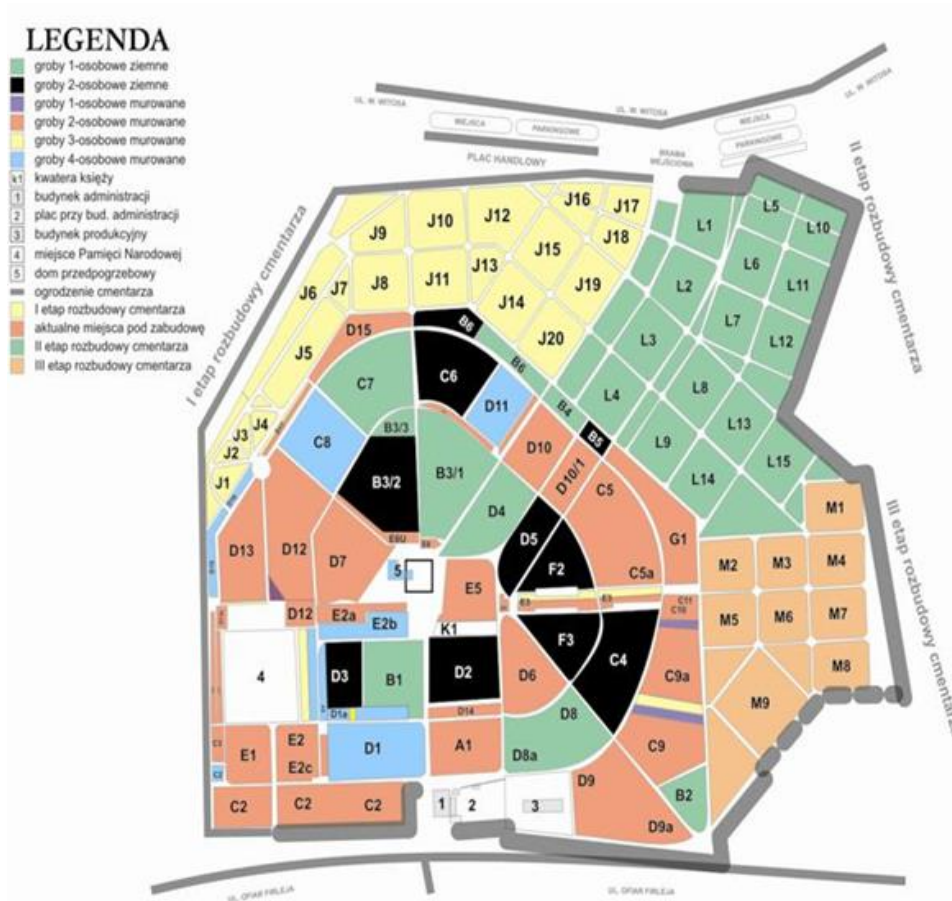
**Figure 4. Commercial funeral services and municipal cemetery services**

### 3. History of the municipal cemetery on Firlej in Radom

Anthropologists discovered that 300 years BC there were performed cremation burials near Radom. It was a funeral ritual after burning a body of a deceased. The ashes were placed in so-called ashtrays or directly in the ground. It seems from the above mentioned that the history comes full circle as BC there were not shortages of places for burials but it was a practical solution worth recommendation today.

Due to the exhaustion of burial places at the Roman Catholic cemetery at Limanowskiego street, there was established the cemetery in the village of Firlej neighbouring Radom. The location was not accidental because it commemorated the site of the Nazi massacre of thousands of inhabitants of Radom during the occupation of 1940-1945. Therefore, it is a place of National Remembrance. The village area also met other requirements related to construction of a new cemetery, namely it was the most prepared in terms of infrastructure and it did not require any other costs related to e.g., expropriation of the lands. Originally, the area covered 25 hectares where a young pine forest grew on sandy ground. The project of the new burial place was created in the 1960s. The first burial at the Municipal Cemetery in Firlej took place on December 24, 1975. Administration of the necropolis was entrusted to the District Municipal Utilities Enterprise in Radom. In 1980,

management of the cemeteries was taken by the Municipal Services Department. Apart from securing of the burial places, in the central part of the necropolis there was started building of a construction complex including: rooms for funeral ceremonies, freezer, auxiliary rooms and multi-denominational chapel. In 1984, the village of Firlej together with the cemetery were included in the administrative borders of Radom. In 1992, by virtue of the Resolution of the City Council in Radom, starting from January 1, 1993 it was transformed into a budget plant called the Municipal Cemetery in Radom. Next, the statute, regulations and organizational chart of the cemetery were defined. The cemetery is managed by a director who is appointed and dismissed by the president of Radom city. Each year brings noticeable change in appearance of the necropolis and its equipping with the infrastructure necessary for this type of facilities. There were planted among others: bushy and woody thujas, park dwarf maples, barberries, junipers, etc. Until the political transformation, terrazzo and concrete dominated on the graves of buried people, however since the beginning of the 1990s it started to appear stone tombstones from all around the world. At the main gate on Ofiar Firlej street there is an administration building, toilet and production building for needs of the cemetery which production was closed on January 1, 2009. In 2010, by decision of the president of Radom city, the project of the cemetery expansion towards the north-east was approved. The first stage of the expansion – approximately 5 hectares, the second stage – approximately 8.5 hectares and the third stage – approximately 6 hectares. Ultimately, the area is supposed to be approximately 45.5 hectares. The area will result that the Radom necropolis will be one of the largest in Poland – the third largest one.



**Figure 5. Plan of the municipal cemetery in Radom in Firlej**  
 Source: Website of the Municipal Cemetery in Radom: cmk.radom.pl

In 2007 it was started to build the entrance gate, concierge with toilets and parking lot for approximately 400 vehicles on the Witosza street. The investment was completed and put into operation on November 1, 2008. The opening of the second entrance improved the burial procedures. The cemetery was divided into the northern part with the entrance from the Witosza street and the southern part with the entrance from the Ofiar Firleja street. As it can be seen from the above there are two public transport access routes to the studied necropolis. The large number of buried people results in great demand for means of transport, especially for elderly people who do not have passenger cars or who have no right to drive them due to their age or contraindications related to their diseases.

In 2016 two large investments have been built in the cemetery. The first one was laying optical fibre throughout the entire cemetery from the Witosa street to the administrative building at the Ofier Firleja street. There were installed 7 lighting poles (it will be possible to go along with further lighting of the cemetery area from them) and mounted 6 cameras at the entrance gates. The second was inventory of the cemetery which involved on construction of two information kiosks with search engine of the graves and installation of 3 information boards. The information kiosks were connected by the optical fibre. It improved ability to find a given grave or a person buried in the cemetery and possibility to reach a grave. At the end of 2022, there were 27,800 graves in which approximately 37,700 people were buried at the cemetery.

The history of building the crematorium in Radom dates back several years. As it was already mentioned before, this method of burial is still discussed although more and more common. In 2011 it was enacted by the City Council of Radom to lease the land located next to the Firlej necropolis to a private company. The research has shown that more people apply for this type of burial. The plot adjacent to the municipal cemetery was taken over by Chester Company for 20 years. The cremation building is located next to the entrance of the cemetery so the facility fits into the entire necropolis. There are two large rooms inside the facility where farewells of deceased people will take place. Residents of Radom more often choose such type of burial as representatives of the funeral industry admit. Notably, it is determined by the costs. In addition, there is also the problem of lack of space in family tombs. Relatives want to rest in one place and there can be more urns than coffins in a tomb (Necropolises of Radom, 2008). The columbarium is a permanent trend today and number of urn burials increases every year, while burials in earth graves require more space. Meanwhile, cemeteries cannot be expanded indefinitely. As part of the investment in the Radom cemetery 2,000 niches were created with possibility of burial approximately 6,000 urns. The columbarium was built in the central part of the cemetery and its construction cost more than 6 million PLN. It consists of six rectangular cemetery chambers. There were installed benches and greenery was planted inside them. During the City Council session, a resolution establishing regulations and price list of urn burials was adopted by the councillors. The prices depend on level and size of the niches – in the smallest niches there will be minimum two urns, in larger ones minimum four urns. That is why the prices range from 4,000 PLN up to 10,800 PLN. One will have to pay twice more to buy the niche during lifetime. Additionally, there are fees for using the places in the cemetery. There will be necessary to pay for the niche for first and next 20 years, depending on its size from 400 PLN to 960 PLN.

#### 4. Statistics of the urn burials in Europe

The cremation is the most common form of burial in Japan, where in 2008, 99.84% of all the burials were cremations. However, in Europe the cremation is most common in the Czech Republic with 88,72% burials respectively. It is certainly influenced by small territories of the countries and, therefore concern for saving most of all urban areas. In Poland the cremation accounts approximately 7% of the burials. The city of Radom keeps statistics of the deceased burials in urns since 2014, as the first burial was recorded in this year.

**Table 1. Number of the urn's funerals in relation to the total funerals in the Firlej Municipal Cemetery in Radom in 2014–2022**

| Year Form                             | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Performed funerals in total           | 1281  | 1324  | 1289  | 1310  | 1385  | 1415  | 1600  | 1725  | 1560  |
| Buried in urns                        | 131   | 213   | 255   | 280   | 310   | 363   | 560   | 633   | 554   |
| Participation of the urn funerals (%) | 10,22 | 16,08 | 19,78 | 21,37 | 22,38 | 25,65 | 35,00 | 36,69 | 35,37 |

Source: Own study based on the statistics from the Firlej Municipal Cemetery in Radom

Although, the cremation in many religious and societies is recognised and practised for centuries, it still arouses many emotions in Poland. Increasingly, they result from growing interests of this form of burial which has gained status of a universal practice in other places in the world.

In Poland, issues related to burials are dealt with, among others, by the Polish Funeral Chamber and the Polish Funeral Association however, none of the institutions has data about number of the performed cremations. Such records are also not kept by the Statistics Poland. Therefore, information on this subject is largely as an estimated nature. Until the turn of 2009/2010, it was possible to obtain such information directly form crematories, however currently many owners of such private facilities operating as other business entities treat such values as an economic one and as a result, they are a subject of commercial confidentiality, in accordance with the provisions contained in the paragraph 4 of the article 11 of the Act on Combating Unfair Competition (Journal of Laws 2022, position 1233). Such proceeding highlights the fact how very business nature becomes this industry. As a consequence, Polish data about the number of the cremations come mainly from the municipal crematories. In 2016,

Krzysztof Wolicki, the chairman of the Polish Funeral Association presented the data to the Polish Press Agency. According to his knowledge, 32-35% of bodies are cremated in the capital and 38-40% in other large cities like Wrocław, Poznań or Szczecin.

According to the chairman of the Polish Funeral Chamber there is no need to record and publish the cremation statistics. However, opposing views are presented by the chairman of the Polish Funeral Association who agreed to provide data for a report dedicated to cremations in European countries, developed by the Cremation Society of Great Britain, *'Pharos International'* Quarterly which is an official magazine available in 40 countries. Based on the collected data, the first three cremations in Great Britain were performed in 1883. Since then, this method of burial has been gaining popularity. The number of cremations in 1911 exceeded 1,023, in 1936 – 11,289, in 1951 – 107,152, and in 2000 it amounted 437,609 and it still grows (The Cremation Society of Great Britain).

**Table 2. Countries with the highest and the lowest number of cremations**

| The most cremations in relation to the total number of funerals in [%] |       | The least cremations in relation to the total number of funerals in [%] |      |
|--|-------|---|------|
| The Czech Republic   | 72,50 | Italy   | 2,94 |
| Great Britain  | 70,07 | Spain   | 5,25 |
| Slovenia   | 83,10 | Bulgaria  | 5,05 |
| Denmark  | 69,38 | Portugal  | 6,95 |
| Switzerland  | 65,26 | Iceland   | 8,90 |
| Sweden   | 64,74 | Luxembourg  | 9,03 |

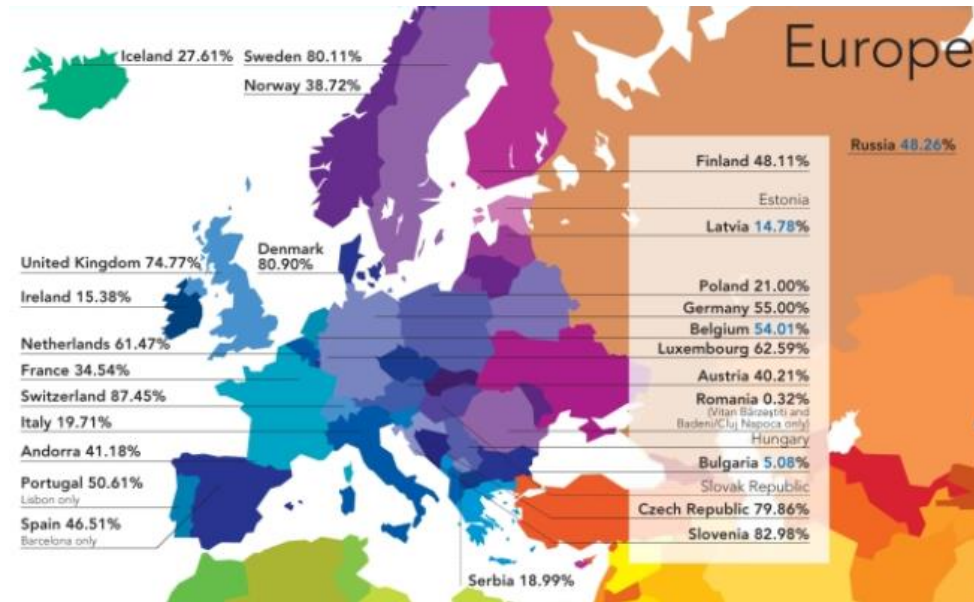
Source: The Cremation Society of Great Britain <http://www.cremation.org.uk/annual-report-2017#pharos>

**Table 3. Number of crematories in the selected EU countries in 1995 and 2014**

| Country       | 1995    | 2014 |
|---------------|---------|------|
| Great Britain | 230     | 273  |
| Germany       | 113     | 158  |
| Sweden        | 74      | 96   |
| France        | no data | 172  |
| Spain         | no data | 132  |
| Poland        | no data | 38*  |

Source: The Cremation Society of Great Britain \* J. Balcer, A. Szczepańska, B. Ławnicka (PAP): <http://www.gazetaprawna.pl/artykuly/988999,w-polsce-dziala-coraz-wiecej-krematoriow.html>

Summarizing the data presented in the tables 2 and 3, it must be stated a certain regularity consisting in the fact that the more crematories in a given country, the more incinerations and vice versa, the fewer crematories, the fewer incinerations.



**Figure 5. European cremation statistics in 2014**

The figure 5 shows that in the Western European countries there was recorded higher percentage of cremations than traditional burials. However, in the Central and Eastern Europe much less. As already mentioned, the exception is the Czech Republic with 79.86% and Slovenia with 82.98%.

## 5. Contemporary trends related to a burial

According to the experts, a burial is a service which should be planned. A website would help a dying person to organize a farewell. Using the website, it could create something like a will. It would specify what kind of burial one wants, what kind of music should accompany the ceremony, who should speak at the grave. With use of the website, both a deceased as well as his or her family could find contact with a psychologist, lawyer, etc. A developed bot helps to organize a funeral. It tactfully asks questions and based on the obtained answers, it diagnoses needs of a deceased.

A program which performs certain activities instead of a human /abbreviation coming from a robot/ and stimulates behaviour of a live user.

Some students redesigned a cemetery as part of practical classes which became more like a park. Ashes of dead people would be buried under trees. All the ideas to reduce the fear of descent and to show that dying is something natural. The ones who deal with this issue came to the conclusion that cemeteries serve mainly living people. There are family



members who are only met at cemeteries. There is still much to be done in these places. There are no lightings, signage and places to sit. It was noticed by a group of 70 and 80-year-old people. From all their problems and needs they chose visits at the cemetery. They are there most often, once a week, some of them even every day. They visit graves of their parents, spouses and friends. They admitted that there is no problem with public transport to the cemetery considering that it is a necropolis of approximately 40 hectares.

The funeral companies operate on the market where they do not have any influence on creation of the basis demand because:

- they do not have any control over the death rate,
- expected lifespan of an average person in the world increases due to achievements in the field of medicine and lack of negative extraordinary events (the exception was the past COVID-19 pandemic and currently the war in Ukraine),
- the funeral entities are treated as representatives of a conservative sector.

Therefore, it is no easy to introduce new products although the sector is not bypassed by, for example digitalization. In many developed markets, funerals of popular human pets like cats and dogs are becoming more and more popular. Other novelties worth to mention is the pre-need service which becomes more and more popular what is making prepayments for funerals costs during lifetime to relieve financially families in the event of death. The money for the pre-need service is transferred to a funeral's company bank account immediately or in instalments. It is most often located in an investment bank account from which the funeral home reaps benefits. Income from such investments is the main source of profits for many mature funeral home operators, hence in such cases it is worth to pay attention what accounting principles are used to record the revenues at the time of actual performance of the funeral service or at the time of making prepayments or its instalments (Deathcare Accounting White Paper 2018). The pre-need services can provide a substantial cash flow. An example is the largest listed funeral company – American Service Corporation International (SCI), which can be on the second position behind PKO BP, the leader of the Polish stock market in terms of market capitalization, making a comparison in Polish conditions (according to the data from the Warsaw Stock Exchange in 2021). In the company's financial statements, it is worth to pay attention to the positions 'pre-need receivables' and related 'investments in funds', which at the end of June 2021 amounted approximately 5.8 billion USD (<https://inverstors.sci-corp.com/> 2021). The funeral industry companies are listed on many stock exchanges. There are no such companies

in Poland. However, in various parts of the world there can be found over 20 companies related to the funeral sector. The industry is governed by its own laws which are clearly different than ones which can be observed in the most recognizable sectors.

The customers can order QR codes placed on tombstones and after their scanning ones can view photos/videos about a deceased on a smartphone. LCD screens displaying multimedia reports from life of the deceased can be installed on tombstones. Finally, Internet broadcasts of funerals are becoming more and more popular – what deepened this trend due to the social isolation caused by the coronavirus. It seems completely unacceptable to produce diamonds from human cremated corpses in the Polish environment. Influence of high temperature above 1700 C degrees causes that coal turns into graphite and then into raw diamond which can be processed and turned into jewellery – many funeral homes in Western countries offer this type of services.

#### 6. Assessment of the urn burials by the respondents

The research covered 300 people entering and leaving the Municipal Cemetery in Firlej in Radom. Before starting the actual examination, each respondent completed a short form in which he or she provided: a gender, age, religious denomination, education and income per one person in a family. The identifiers often reflected the answers to the questions provided in the survey. The demographic characteristics of the study sample is presented in the table 4.

**Table 4. The demographic characteristics of the study sample**

| Gender         | Age                     | Religious denomination | Education           | Income per one person in a family in PLN |
|----------------|-------------------------|------------------------|---------------------|--|
| Woman<br>46,1% | Up to 39 years<br>11,0% | Catholic<br>90,0%      | Basic<br>19,1%      | 400-800<br>14,8%                         |
| Man<br>53,9%   | 40-49 years<br>36,6%    | Others<br>10,0%        | Vocational<br>21,9% | 801-1200<br>31,2%                        |
|                | 50-59 years<br>25,0%    |                        | Secondary<br>34,0%  | 1201-1600<br>29,0%                       |
|                | over 60 years<br>27,4%  |                        | Higher<br>25%       | over 1600<br>25,0%                       |

Source: Own study based on the empirical research

The tested sample included: 53.9% men, 36.6% of them were aged 40-49 years, the largest group with income per person in the range

1201-1600 PLN was 29%. The respondents with the Catholic denomination were 90% and only 10% are atheists and other denominations.

**Table 5. Advantages of burials in the urn tombstones and the columbaria compared to the traditional grave**

| No. | ADVANTAGES                                      | Number of indications |
|-----|---|-----------------------|
| 1   | Lower price of the funeral                      | 150                   |
| 2   | Lower cost of the burial plots                  | 125                   |
| 3   | Lower price of the tombstone                    | 110                   |
| 4   | Easy to care of                                 | 60                    |
| 5   | Compliant with the norms of the Catholic Church | 205                   |
| 6   | Resistant to external factors                   | 115                   |
| 7   | Ecological                                      | 85                    |
| 8   | Rich design                                     | 55                    |
| 9   | Original appearance                             | 60                    |
| 10  | Saving space in a cemetery                      | 105                   |
| 11  | Others  | 20                    |

Source: Results of the survey conducted by the students (the respondents could choose any number of the answers)

The norms of the Catholic Church influence the choice of the burial type, as many as 205 indications mainly declared as people of the Catholic denomination. In relation to the preferred advantages of burials in the urn tombstones and the columbaria, the largest group of the respondents indicated a lower funeral cost, correspondingly correlated with its lower cost of burial places and lower price of the tombstone as the elements influencing the funeral costs. It should be noted, that people who declared lower income over 50 and 60 years old were included in the group. Younger respondents did not pay much attention to this issue. A large number of the respondents notice ecological aspects what should be assessed positively. One of the respondents justified her choice of the cremation saying: 'why should worms eat me after death'? The general social problem of saving space in the cemetery what was the main reason of the research hypothesis in the article was noticed by the respondents in a lesser extent.

### Conclusions

Considering burial of a deceased person in the traditional way or through the cremation, there are more arguments in favour of the burial in an urn and the fact is that in the cemeteries, especially in the cities there is simply no room – hence return to the incineration tradition because the urns occupy less space. There is a possibility to bury several generations in a one tomb. The cremated corpses do not pollute groundwater, pathogenic bacteria related to decomposition of the bodies are eliminated. The cremation

is the most economical, pro-ecological and aesthetic solution and due to this, the form of the burial in an urn is becoming more and more popular in Poland. Despite the fact, that the costs of the traditional funeral are often high, most often people agree with the need to bear them and choose the traditional burial because it is ordered by the tradition and the religion. It should be added that the cremation requires relatively less effort and formalities. Another argument in favour of the cremation is the fact, that the catholic denomination has no restrictions and no major significance whether a body after death will be a pile of broken bones or a handful of ashes. Nevertheless, there are cases that priests do not want to conduct a funeral mass over the urn, refusing the burial or dividing the requiem mass into two: with the body of the deceased and then with the cremated corpse what largely contributes to discourage and withdraw from the cremation in favour of the traditional funeral.

Finally, I will quote a justification for choice of burial by one of the surveyed people: 'Death is the surest state that will happen to each of us. Once, I used to think about my death, wanting to live to a ripe old age and die in sleep, without pain, go to sleep and just fall asleep forever. What kind of burial would I like? More like an urn. I think that loved ones experience differently when they do not see the body in a coffin. I would like keep in their memory only the moments when I was alive. I would like them to remember me smiling, cheerful and enjoying every moment, every day. For their sake, I would like them to not see my body in a coffin and in this case economic, religious and cultural aspects do not matter. It would be simply my last will. In every Ash Wednesday a priest sprinkles ashes on heads and says: 'Ashes to ashes and dust to dust' and after my death, I would like my family to fulfil the second part of the sentence and turned my body to dust. Choice of each person depends on an individual approach to the topic. Some people will take into account the cultural aspect, others the religious aspect, and still others – the economical one. It all depends on a person's mentality. Despite the fact, it is a difficult but actual topic and it will be trendy. It will always be like this, because 'who is born will have to die'.

The problem presented in the article does not totally cover the examined issues and it will require further research and analysis. The difficulty of the topic is that it is located on the border of the 'two worlds', real one and afterlife one.

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