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**EVALUATION OF ENTERPRISE KNOWLEDGE
MANAGEMENT SYSTEM**

This article explores the role of knowledge management in the enterprise management system. Comparative assessment of enterprises knowledge management was done using the Saaty's method to determine the most effective enterprise knowledge management system, taking into account the priority value of each criterion.

Keywords: knowledge management; Saaty's method; matrix of pairwise comparisons.

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ОЦІНЮВАННЯ СИСТЕМИ УПРАВЛІННЯ
ЗНАННЯМИ ПІДПРИЄМСТВ**

У статті досліджено роль управління знаннями в системі управління підприємством. Виконано порівняльну оцінку системи управління знаннями на підприємствах за допомогою методу Сааті. Визначено підприємство з найбільш ефективною системою управління знаннями з врахуванням величини пріоритету кожного критерію.

Ключові слова: управління знаннями; метод Сааті; матриця попарних порівнянь.

Форм. 6. Рис. 1. Табл. 12. Літ. 10.

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ОЦЕНКА СИСТЕМЫ УПРАВЛЕНИЯ
ЗНАНИЯМИ ПРЕДПРИЯТИЙ**

В статье исследована роль управления знаниями в системе управления предприятиями. Выполнена сравнительная оценка системы управления знаниями на предприятиях с помощью метода Сааті. Определено предприятие с наиболее эффективной системой управления знаниями с учетом величины приоритета каждого критерия.

Ключевые слова: управление знаниями; метод Сааті; матрица попарных сравнений.

Introduction. Development of innovative systems and the ability to create knowledge and put them into practice in today's world have become important basic pre-conditions of all countries, regions and enterprises. Corporate knowledge have now become an important resource that actively influences the growth of enterprises' competitiveness, the level of investment attractiveness, development and use of innovative potential. Therefore, the issue of comparative assessment of the existing knowledge management systems in enterprises is quite relevant.

Latest research and publications analysis. Mathematical methods have been actively and successfully used to solve economic issues by such scholars as O. Alekhin (2012), I. Blahun (2000), P. Grygoruk (2012), P. Grygoruk and I. Tkachenko (2012), T. Klebanova et al. (2008), V. Vitlinsky (2003). One of the methods that allows applying objective mathematical methods for the treatment of subjective preferences of individuals or groups in decision-making is the method of analytic hierarchy by T. Saaty (1991; 1993; 2008). He successfully used it to solve various practical problems, including multi-objective optimization problems. It is advisable to use this method for comparative evaluation of knowledge management at enterprises.

The object of the research is the enterprise knowledge management system.

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The goal of the article is the comparative evaluation of enterprise knowledge management system using the Analytic Hierarchy Process (AHP).

The method for the research is the Analytic Hierarchy Process (or Saaty's method).

Key research findings. To achieve the stated goal, solving of the problem will be conducted on the basis of data on the knowledge management systems at 3 engineering enterprises of Khmelnitsky region with the following characteristics:

- Enterprise 1 (E1): indicator "Staff" – high level, indicator "Technology" – average level, indicator "Processes" – average level, indicator "Innovation" – low level, indicator "Finances" – average level.

- Enterprise 2 (E2): indicator "Staff" – low level, indicator "Technology" – high level, indicator "Processes" – high level, indicator "Innovation" – average level, indicator "Finances" – low level.

- Enterprise 3 (E3): indicator "Staff" – average level, indicator "Technology" – low level, indicator "Processes" – low level, indicator "Innovation" – high level, indicator "Finances" – average level.

AHP is the theory of measurement through pairwise comparisons relying on the judgements of experts to derive priority scales. It is these scales that measure intangibles in relative terms. The comparisons are made using the scale of absolute judgements that represents, how much more, one element dominates over another with respect to a given attribute (Saaty, 2008: 83).

1st step. Presentation of the problem as a hierarchy. To determine the knowledge management system criteria: staff, technology, processes, innovation, finances. For each criterion we distinguish subcriteria (Figure 1):

- Subcriteria of the indicator "Staff": employee training (ET), communication links (CL), motivation system (MS), teamwork (TW).

- Subcriteria of the indicator "Technology": database (DB), Web Portal (WP), system for collecting information on the Internet (CI), creation of information flows (IF).

- Subcriteria of the indicator "Processes": corporate culture (CC), identification of knowledge (IK), identifying the existing knowledge (EK), change management (CM).

- Subcriteria of the indicator "Innovation": implementation of new advanced technological processes (TP), implementation of marketing innovations (MI), implementation of organizational innovation (OI), implementation of innovative products (IP).

- Subcriteria of the indicator "Finances": investment in employees training (IE), investments in information technology (IT), investment advisory and consulting services in knowledge management (IC), investment in innovation (II).

2nd step. Set priorities and criteria using the knowledge of experts for evaluating each alternative on criteria identifying the most important of them (Table 1).

Building a matrix of pairwise comparisons on specific criteria (level 2 in Figure 1) (Table 2).

Components of the vector of local priorities are calculated using the formula:

$$\bar{u}_i = \sqrt[n]{\prod_{j=1}^n a_{ij}}; \quad i = 1, n, \quad (1)$$

where a_{ij} – i -th element of the j -th column of the matrix of pairwise comparisons criteria; n – the number of criteria;

$$u_i = \frac{\bar{u}_i}{\sum_{i=1}^n \bar{u}_i}; \quad i = \overline{1, n}. \quad (2)$$

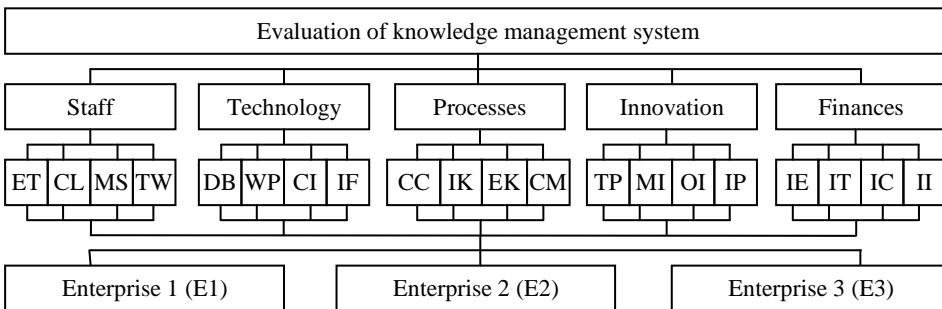


Figure 1. Hierarchical evaluation model of enterprise knowledge management system, author's development

Table 1. The Saaty Rating Scale (Saaty, 2008: 86)

| Intensity of importance | Definition | Explanation |
|-------------------------|---------------------------|--|
| 1 | Equal importance | Two factors contribute equally to the objective |
| 3 | Somewhat more important | Experience and judgement slightly favour one over the other |
| 5 | Much more important | Experience and judgement strongly favour one over the other |
| 7 | Very much more important | Experience and judgement very strongly favour one over the other. Its importance is demonstrated on practice |
| 9 | Absolutely more important | The evidence favouring one over the other is of the highest possible validity |
| 2, 4, 6, 8 | Intermediate values | When compromise is needed |

Table 2. The matrix of pairwise comparisons (level 2), author's development

| № | Name elements compared to the second level hierarchical model | Name elements compared to the second level hierarchical model | | | | | Local priorities, u_i |
|---|---|---|------------|-----------|------------|----------|-------------------------|
| | | Staff | Technology | Processes | Innovation | Finances | |
| 1 | Staff | 1 | 5 | 6 | 7 | 4 | 0,535 |
| 2 | Technology | 1/5 | 1 | 1/4 | 1 | 1/4 | 0,058 |
| 3 | Processes | 1/6 | 4 | 1 | 1/2 | 1/3 | 0,090 |
| 4 | Innovation | 1/7 | 1 | 2 | 1 | 1/5 | 0,078 |
| 5 | Finances | 1/4 | 4 | 3 | 5 | 1 | 0,239 |
| $\lambda_{\max} = 5,427; IU = 0,107; VU = 0,096.$ | | | | | | | |

Corresponding calculation for our example:

$$\begin{aligned}
 n = 5; \quad \bar{u}_1 &= \sqrt[5]{1 \times 5 \times 6 \times 7 \times 4} = 3,845; \quad \bar{u}_2 = \sqrt[5]{\frac{1}{5} \times 1 \times \frac{1}{4} \times 1 \times \frac{1}{4}} = 0,416; \\
 \bar{u}_3 &= \sqrt[5]{\frac{1}{6} \times 4 \times 1 \times \frac{1}{2} \times \frac{1}{3}} = 0,644; \quad \bar{u}_4 = \sqrt[5]{\frac{1}{7} \times 1 \times 2 \times 1 \times \frac{1}{5}} = 0,564; \\
 \bar{u}_5 &= \sqrt[5]{\frac{1}{4} \times 4 \times 3 \times 5 \times 1} = 1,719; \\
 \sum_{i=1}^5 (\bar{u}_1 + \bar{u}_2 + \bar{u}_3 + \bar{u}_4 + \bar{u}_5) &= 7,188; \\
 u_1 &= \frac{3,845}{7,188} = 0,535; \quad u_2 = \frac{0,416}{7,188} = 0,058; \quad u_3 = \frac{0,644}{7,188} = 0,090; \\
 u_4 &= \frac{0,564}{7,188} = 0,078; \quad u_5 = \frac{1,719}{7,188} = 0,239.
 \end{aligned}$$

Value of the vector of local priorities are listed in the last column (Table 2).

The maximum eigenvalue inversely symmetrical matrix of pairwise comparisons is defined as follows:

$$\lambda_{\max} \approx \sum_{j=1}^n u_j \left(\sum_{i=1}^n a_{ij} \right). \quad (3)$$

Corresponding calculation for our example:

$$\begin{aligned}
 \sum_{i=1}^5 a_{i1} &= 1 + \frac{1}{5} + \frac{1}{6} + \frac{1}{7} + \frac{1}{4} = 1,759; \quad \sum_{i=1}^5 a_{i2} = 5 + 1 + 4 + 1 + 4 = 15,000; \\
 \sum_{i=1}^5 a_{i3} &= 6 + \frac{1}{4} + 1 + 2 + 3 = 12,250; \quad \sum_{i=1}^5 a_{i4} = 7 + 1 + \frac{1}{2} + 1 + 5 = 14,500; \\
 \sum_{i=1}^5 a_{i5} &= 4 + \frac{1}{4} + \frac{1}{3} + \frac{1}{5} + 1 = 5,783; \\
 \lambda_{\max} &= 0,535 \times 1,759 + 0,058 \times 15,000 + 0,090 \times 12,250 + \\
 &\quad + 0,078 \times 14,500 + 0,239 \times 5,783 = 5,427.
 \end{aligned}$$

Estimates of the relative importance of the elements to be compared must be agreed, so we define the index (IU) and the ratio consistency (VU):

$$IU = \frac{\lambda_{\max} - n}{n-1} = \frac{5,427 - 5}{5-1} = 0,107; \quad (4)$$

$$VU = \frac{IU}{VI} = \frac{0,107}{1,12} = 0,096. \quad (5)$$

where VI – the random index (when $n = 5 \rightarrow VI = 1,12$, when $n = 4 \rightarrow VI = 0,9$, when $n = 3 \rightarrow VI = 0,58$)

If $VU < 0,1$, then the matrix of priorities is considered to be satisfactory, and when this condition is not met, the experts are recommended to reconsider judgment and edit the matrix of pairwise comparisons.

The values λ_{\max} , IU , VU are recorded in the last row of the table.

3rd step. Conducting analysis of all subcriteria of level 3 in respect of each criterion of level 2 (Table 3–7).

Table 3. Matrix of pairwise comparisons for the third level elements (the criterion "Staff"), author's development

| № | Name elements compared to the third level hierarchical model | Name elements compared to the third level hierarchical model | | | | Local priorities, V_{i1} |
|--|--|--|----|-----|----|----------------------------|
| | | ET | CL | MS | TW | |
| 1 | ET | 1 | 3 | 2 | 3 | 0,443 |
| 2 | CL | 1/3 | 1 | 1/4 | 1 | 0,116 |
| 3 | MS | 1/2 | 4 | 1 | 2 | 0,304 |
| 4 | TW | 1/3 | 1 | 1/2 | 1 | 0,137 |
| $\lambda_{\max} = 4,102$; IU = 0,034; VU = 0,038. | | | | | | |

Table 4. Matrix of pairwise comparisons for the third level elements (the criterion "Technology"), author's development

| № | Name elements compared to the third level hierarchical model | Name elements compared to the third level hierarchical model | | | | Local priorities, V_{i2} |
|--|--|--|-----|----|-----|----------------------------|
| | | DB | WP | CI | IF | |
| 1 | DB | 1 | 2 | 5 | 2 | 0,449 |
| 2 | WP | 1/2 | 1 | 3 | 1 | 0,235 |
| 3 | CI | 1/5 | 1/3 | 1 | 1/3 | 0,082 |
| 4 | IF | 1/2 | 1 | 3 | 1 | 0,235 |
| $\lambda_{\max} = 4,004$; IU = 0,001; VU = 0,002. | | | | | | |

Table 5. Matrix of pairwise comparisons for the third level elements (the criterion "Processes"), author's development

| № | Name elements compared to the third level hierarchical model | Name elements compared to the third level hierarchical model | | | | Local priorities, V_{i3} |
|--|--|--|----|----|-----|----------------------------|
| | | CC | IK | EK | CM | |
| 1 | CC | 1 | 3 | 3 | 1 | 0,375 |
| 2 | IK | 1/3 | 1 | 1 | 1/3 | 0,125 |
| 3 | EK | 1/3 | 1 | 1 | 1/3 | 0,125 |
| 4 | CM | 1 | 3 | 3 | 1 | 0,375 |
| $\lambda_{\max} = 4,000$; IU = 0,000; VU = 0,000. | | | | | | |

Table 6. Matrix of pairwise comparisons for the third level elements (the criterion "Innovation"), author's development

| № | Name elements compared to the third level hierarchical model | Name elements compared to the third level hierarchical model | | | | Local priorities, V_{i4} |
|--|--|--|----|----|-----|----------------------------|
| | | TP | MI | OI | IP | |
| 1 | TP | 1 | 3 | 4 | 2 | 0,477 |
| 2 | MI | 1/3 | 1 | 1 | 1/2 | 0,138 |
| 3 | OI | 1/4 | 1 | 1 | 1/2 | 0,128 |
| 4 | IP | 1/2 | 2 | 2 | 1 | 0,257 |
| $\lambda_{\max} = 4,011$; IU = 0,004; VU = 0,004. | | | | | | |

**Table 7. Matrix of pairwise comparisons for the third level elements
(the criterion "Finances"), author's development**

| № | Name elements compared to the third level hierarchical model | Name elements compared to the third level hierarchical model | | | | Local priorities, V_{15} |
|---|--|--|-----|----|-----|----------------------------|
| | | IE | IT | IC | II | |
| 1 | IE | 1 | 2 | 5 | 2 | 0,449 |
| 2 | IT | 1/2 | 1 | 3 | 1 | 0,235 |
| 3 | IC | 1/5 | 1/3 | 1 | 1/3 | 0,082 |
| 4 | II | 1/2 | 1 | 3 | 1 | 0,235 |

$\lambda_{\max} = 4,004$; IU = 0,001; VU = 0,002.

4th step. With the application of the principle of synthesis we can define the global priorities elements of the 3rd level:

$$Z_i = V_{ij} U_i, \quad (6)$$

where V_{ij} – local priority (weight) i -th element of level 3 with respect to the j -th element-criterion of level 2.

Corresponding calculations for our example:

$$\begin{aligned} Z_1 &= 0,443 \times 0,535 = 0,237; \quad Z_2 = 0,116 \times 0,535 = 0,062; \\ Z_3 &= 0,304 \times 0,535 = 0,163; \quad Z_4 = 0,137 \times 0,535 = 0,073; \\ Z_5 &= 0,449 \times 0,058 = 0,026; \quad Z_6 = 0,235 \times 0,058 = 0,014; \\ Z_7 &= 0,082 \times 0,058 = 0,005; \quad Z_8 = 0,235 \times 0,058 = 0,014; \\ Z_9 &= 0,375 \times 0,090 = 0,034; \quad Z_{10} = 0,125 \times 0,090 = 0,011; \\ Z_{11} &= 0,125 \times 0,090 = 0,011; \quad Z_{12} = 0,375 \times 0,090 = 0,034; \\ Z_{13} &= 0,477 \times 0,078 = 0,037; \quad Z_{14} = 0,138 \times 0,078 = 0,011; \\ Z_{15} &= 0,128 \times 0,078 = 0,010; \quad Z_{16} = 0,257 \times 0,078 = 0,020; \\ Z_{17} &= 0,449 \times 0,239 = 0,107; \quad Z_{18} = 0,235 \times 0,239 = 0,056; \\ Z_{19} &= 0,082 \times 0,239 = 0,020; \quad Z_{20} = 0,235 \times 0,239 = 0,056. \end{aligned}$$

5th step. Determine local priorities for level 4 with respect to any criterion of 3 level (Table 8–12).

Table 8. Local priorities for the fourth level elements (relatively to the third level criterion "Staff"), author's development

| ET | E1 | E2 | E3 | Local priorities, W_{i1} | CL | E1 | E2 | E3 | Local priorities, W_{i2} |
|--|-----|----|-----|----------------------------|--|-----|----|-----|----------------------------|
| E1 | 1 | 7 | 4 | 0,705 | E1 | 1 | 6 | 3 | 0,635 |
| E2 | 1/7 | 1 | 1/3 | 0,084 | E2 | 1/6 | 1 | 1/5 | 0,078 |
| E3 | 1/4 | 3 | 1 | 0,211 | E3 | 1/3 | 5 | 1 | 0,287 |
| $\lambda_{\max} = 3,032$; IU = 0,016; VU = 0,028. | | | | | $\lambda_{\max} = 3,094$; IU = 0,047; VU = 0,081. | | | | |
| MS | E1 | E2 | E3 | Local priorities, W_{i3} | TW | E1 | E2 | E3 | Local priorities, W_{i4} |
| E1 | 1 | 8 | 5 | 0,733 | E1 | 1 | 5 | 4 | 0,674 |
| E2 | 1/8 | 1 | 1/4 | 0,068 | E2 | 1/5 | 1 | 1/3 | 0,101 |
| E3 | 1/5 | 4 | 1 | 0,199 | E3 | 1/4 | 3 | 1 | 0,226 |
| $\lambda_{\max} = 3,094$; IU = 0,047; VU = 0,081. | | | | | $\lambda_{\max} = 3,086$; IU = 0,043; VU = 0,074. | | | | |

Table 9. Local priorities for the fourth level elements (relatively to the third level criterion "Technology"), author's development

| DB | E1 | E2 | E3 | Local priorities, W_{i5} | WP | E1 | E2 | E3 | Local priorities, W_{i6} |
|---|-----|-----|----|----------------------------|---|-----|-----|----|----------------------------|
| E1 | 1 | 1/5 | 3 | 0,195 | E1 | 1 | 1/6 | 2 | 0,163 |
| E2 | 5 | 1 | 6 | 0,717 | E2 | 6 | 1 | 5 | 0,729 |
| E3 | 1/3 | 1/6 | 1 | 0,088 | E3 | 1/2 | 1/5 | 1 | 0,109 |
| $\lambda_{\max} = 3,094; IU = 0,047; VU = 0,081.$ | | | | | $\lambda_{\max} = 3,086; IU = 0,043; VU = 0,074.$ | | | | |
| CI | E1 | E2 | E3 | Local priorities, W_{i7} | IF | E1 | E2 | E3 | Local priorities, W_{i8} |
| E1 | 1 | 1/7 | 4 | 0,186 | E1 | 1 | 1/7 | 2 | 0,144 |
| E2 | 7 | 1 | 5 | 0,732 | E2 | 7 | 1 | 6 | 0,760 |
| E3 | 1/4 | 1/5 | 1 | 0,082 | E3 | 1/2 | 1/6 | 1 | 0,096 |
| $\lambda_{\max} = 3,339; IU = 0,169; VU = 0,292.$ | | | | | $\lambda_{\max} = 3,080; IU = 0,040; VU = 0,069.$ | | | | |

Table 10. Local priorities for the fourth level elements (relatively to the third level criterion "Processes"), author's development

| CC | E1 | E2 | E3 | Local priorities, W_{i9} | IK | E1 | E2 | E3 | Local priorities, W_{i10} |
|---|-----|-----|----|-----------------------------|---|-----|-----|----|-----------------------------|
| E1 | 1 | 1/3 | 2 | 0,216 | E1 | 1 | 1/4 | 4 | 0,236 |
| E2 | 3 | 1 | 7 | 0,682 | E2 | 4 | 1 | 6 | 0,682 |
| E3 | 1/2 | 1/7 | 1 | 0,103 | E3 | 1/4 | 1/6 | 1 | 0,082 |
| $\lambda_{\max} = 3,003; IU = 0,001; VU = 0,002.$ | | | | | $\lambda_{\max} = 3,108; IU = 0,054; VU = 0,093.$ | | | | |
| EK | E1 | E2 | E3 | Local priorities, W_{i11} | CM | E1 | E2 | E3 | Local priorities, W_{i12} |
| E1 | 1 | 1/5 | 2 | 0,179 | E1 | 1 | 1/3 | 5 | 0,287 |
| E2 | 5 | 1 | 5 | 0,709 | E2 | 3 | 1 | 6 | 0,635 |
| E3 | 1/2 | 1/5 | 1 | 0,113 | E3 | 1/5 | 1/6 | 1 | 0,078 |
| $\lambda_{\max} = 3,054; IU = 0,027; VU = 0,046.$ | | | | | $\lambda_{\max} = 3,094; IU = 0,047; VU = 0,081.$ | | | | |

Table 11. Local priorities for the fourth level elements (relatively to the third level criterion "Innovation"), author's development

| TP | E1 | E2 | E3 | Local priorities, W_{i13} | MI | E1 | E2 | E3 | Local priorities, W_{i14} |
|---|----|-----|-----|-----------------------------|---|----|-----|-----|-----------------------------|
| E1 | 1 | 1/4 | 1/8 | 0,073 | E1 | 1 | 1/5 | 1/6 | 0,081 |
| E2 | 4 | 1 | 1/3 | 0,256 | E2 | 5 | 1 | 1/2 | 0,342 |
| E3 | 8 | 3 | 1 | 0,671 | E3 | 6 | 2 | 1 | 0,577 |
| $\lambda_{\max} = 3,018; IU = 0,009; VU = 0,016.$ | | | | | $\lambda_{\max} = 3,029; IU = 0,015; VU = 0,025.$ | | | | |
| OI | E1 | E2 | E3 | Local priorities, W_{i15} | IP | E1 | E2 | E3 | Local priorities, W_{i16} |
| E1 | 1 | 1/3 | 1/7 | 0,088 | E1 | 1 | 1/5 | 1/8 | 0,064 |
| E2 | 3 | 1 | 1/3 | 0,243 | E2 | 5 | 1 | 1/4 | 0,237 |
| E3 | 7 | 3 | 1 | 0,669 | E3 | 8 | 4 | 1 | 0,699 |
| $\lambda_{\max} = 3,007; IU = 0,004; VU = 0,006.$ | | | | | $\lambda_{\max} = 3,094; IU = 0,047; VU = 0,081.$ | | | | |

6th step. Apply the principle of synthesis to identify the global priorities elements of the 4th level. Global priorities elements of level 4 are defined as the sum of local priorities applications for every element of level 4 on global priorities elements of level 3.

Table 12. Local priorities for the fourth level elements (relatively to the third level criterion "Finances"), author's development

| IE | E1 | E2 | E3 | Local priorities, W_{i17} | IT | E1 | E2 | E3 | Local priorities, W_{i17} |
|---|-----|----|-----|-----------------------------|---|-----|----|-----|-----------------------------|
| E1 | 1 | 3 | 1 | 0,443 | E1 | 1 | 4 | 2 | 0,558 |
| E2 | 1/3 | 1 | 1/2 | 0,169 | E2 | 1/4 | 1 | 1/3 | 0,122 |
| E3 | 1 | 2 | 1 | 0,387 | E3 | 1/2 | 3 | 1 | 0,320 |
| $\lambda_{\max} = 3,018; IU = 0,009; VU = 0,016.$ | | | | | $\lambda_{\max} = 3,018; IU = 0,009; VU = 0,016.$ | | | | |
| IC | E1 | E2 | E3 | Local priorities, W_{i19} | II | E1 | E2 | E3 | Local priorities, W_{i20} |
| E1 | 1 | 6 | 3 | 0,644 | E1 | 1 | 5 | 1 | 0,481 |
| E2 | 1/6 | 1 | 1/4 | 0,085 | E2 | 1/5 | 1 | 1/3 | 0,114 |
| E3 | 1/3 | 4 | 1 | 0,271 | E3 | 1 | 3 | 1 | 0,405 |
| $\lambda_{\max} = 3,054; IU = 0,027; VU = 0,046.$ | | | | | $\lambda_{\max} = 3,029; IU = 0,015; VU = 0,025.$ | | | | |

For Enterprises 1, 2, 3 define:

$$WE1 = W11Z1 + W12Z2 + \dots + W120Z20 = 0,531;$$

$$WE2 = W21Z1 + W22Z2 + \dots + W220Z20 = 0,199;$$

$$WE3 = W31Z1 + W32Z2 + \dots + W320Z20 = 0,270.$$

7th step. Analysis of the results. In light of the priority assessment criteria we assess the knowledge management systems at enterprises. The research results indicate that the most efficient system of knowledge management is at Enterprise 1 (0,531), followed by Enterprise 3 (0,270), and the third goes Enterprise 2 (0,199).

Conclusions. Here we have carried out the comparative assessment of 3 engineering enterprises' knowledge management system of Khmelnytsky region using the analytic hierarchy process. We defined that the most important in knowledge management is the indicator "Staff" (weight – 0,535), then goes the indicator "Finances" (0,239), then the indicator "Processes" (0,090), then "Innovation" (0,078), then "Technology" (0,058).

The research demonstrated that the most efficient system of knowledge management is at Enterprise 1, followed by Enterprise 3, and then by Enterprise 2. The most problematic place for Enterprise 1 is innovation, especially the implementation of new advanced technological processes. The most problematic place for Enterprise 2 are staff, especially employee training and finances, investment in employee training. The most problematic place for Enterprise 3 are technology, especially database and processes (corporate culture). To improve the efficiency of knowledge management these companies should make effective management decisions according to these parameters results.

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