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**STATISTICAL ANALYSIS OF THE EFFECTIVENESS OF INFORMATION SYSTEMS FOR THE MANAGEMENT OF TERRITORIAL COMMUNITIES  
СТАТИСТИЧНИЙ АНАЛІЗ ЕФЕКТИВНОСТІ ІНФОРМАЦІЙНИХ СИСТЕМ УПРАВЛІННЯ ТЕРИТОРІАЛЬНИМИ ГРОМАДАМИ**

Modern information systems for managing territorial communities significantly increase the efficiency of community functioning by providing quick access to data, process optimisation and transparency of decisions. The implementation of such systems as SMART Community, Social Community, Open City, Diia. Hromada, and others contribute to the sustainable development of communities and meet the needs of residents.

Analysing the effectiveness of community management information systems is an important step in assessing their impact on economic, social and administrative aspects. Several key indicators can be identified for this purpose.

First, economic indicators play an important role in determining the financial efficiency of the system. Reducing the cost of administrative services is one of the main criteria. For example, the introduction of electronic services can reduce the cost

of servicing citizens, as there is less need for paperwork and physical presence at appointments.

Social indicators reflect the level of satisfaction of residents with the services provided through information systems. A high level of satisfaction may indicate the quality of service, accessibility of services and their compliance with the expectations of citizens. For example, conducting surveys among residents can help identify weaknesses in the system and improve service delivery. In addition, the level of citizen participation in decision-making is an important indicator of social engagement.

Finally, administrative indicators demonstrate the efficiency of the system itself. The processing time of requests is an important criterion that shows how quickly the system responds to the needs of citizens. The shorter the time, the higher the efficiency of the system. An increase in the number of requests via electronic platforms also indicates a growing trust in new technologies and their ease of use.

Thus, by analysing these indicators, it is possible to obtain a comprehensive picture of the effectiveness of information systems for management and territorial development, which will contribute to their further improvement.

To evaluate the effectiveness of information systems for the management of territorial communities, various statistical methods are used to help understand the main trends and relationships between different factors. One of the main tools in this process is descriptive statistics, which allows analysing averages, medians and modes. These indicators provide a clear picture of the main trends in the use of information systems, which is important for decision-making.

Correlation analysis is another important method that helps to identify the links between system performance and various factors, such as the number of users or the time it takes to process requests. This allows you to understand which elements affect system performance and what changes might be beneficial.

Regression analysis also plays a significant role in predicting the effectiveness of information systems. This method can be used to build models that show how

changes in investment in a system or its level of use affect its performance. This is important for strategic planning and resource optimisation.

Finally, multivariate analysis methods, such as clustering, allow communities to be classified according to the level of use of management information systems and their performance indicators. This provides a way to compare different territorial units and identify best practices, which can help improve the management system.

In order to analyse the effectiveness of information systems for managing territorial communities, it is important to use modern software tools that ensure the accuracy and reliability of data. One of the most popular tools is the Python programming language, which offers powerful libraries such as Pandas, NumPy, StatsModels and Scikit-learn. These libraries allow you to perform a wide range of statistical analyses, process large amounts of data, and create forecasts.

Another important tool is R, which provides a variety of statistical analysis packages, including dplyr, ggplot2, and caret. These packages help in efficient data management, visualisation of results and building forecasting models.

In addition, there is specialised statistical analysis software such as SPSS and Stata. These programs offer interactive interfaces, making them accessible to users who do not have deep programming knowledge. They provide powerful tools for data analysis, which is critical for effective community management.

Thus, in order to conduct a comprehensive analysis of the effectiveness of information systems for the management of territorial communities, it is important to implement modern statistical tools that allow data processing, analysis and informed decision-making.

In general, statistical analysis is an indispensable tool for assessing and improving information systems for the management of territorial communities, providing an opportunity for informed decisions and strategic development. The use of modern statistical methods ensures more transparent and efficient community management.

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## РОЛЬ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ У ЗАБЕЗПЕЧЕННІ ПРОЗОРОСТІ ТА ПІДЗВІТНОСТІ В ПУБЛІЧНОМУ УПРАВЛІННІ: СУЧАСНІ ВИКЛИКИ ТА МОЖЛИВОСТІ THE ROLE OF INFORMATION TECHNOLOGIES IN ENSURING TRANSPARENCY AND ACCOUNTABILITY IN PUBLIC ADMINISTRATION: CURRENT CHALLENGES AND OPPORTUNITIES

Інформаційні технології є беззаперечним інструментом, яким допомагає урядам країн проводити свою політику відкрито та прозоро, адже з цілковитим впровадженням технологій в публічне управління, приховати неправомірне використання коштів чи використання своїх повноважень буде неможливо. Однією із найбільш розвинених технологій, яка активно використовується в публічному управлінні є технології штучного інтелекту (ШІ) [1], прогнозна динаміка якої наведена на Рис. 1.

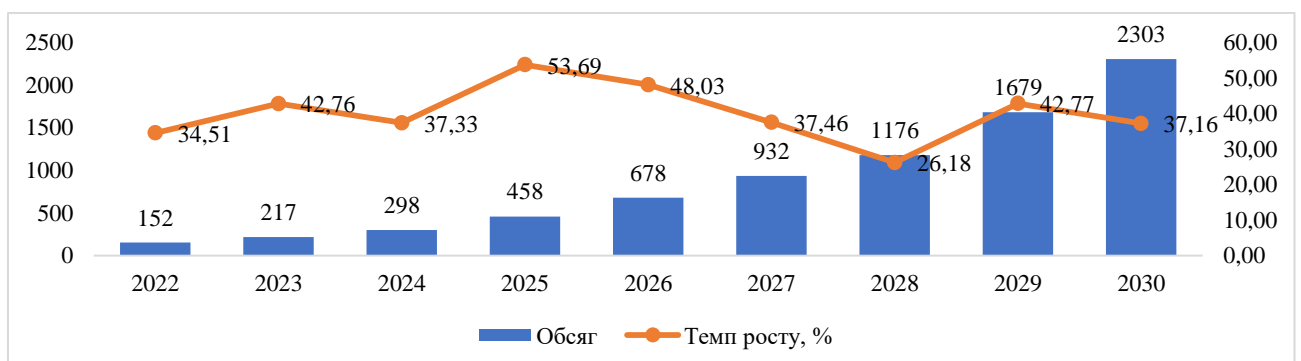


Рисунок 1 - Прогнозна динаміка використання ШІ в публічному