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 Research Article

INDICATORS USED TO ASSESS THE SUCCESS OF ERP SYSTEMS

Obidjon Bekmirzaev
Tashkent State University of Economics, Tashkent, Uzbekistan

Kumushbibi Gulomova
Tashkent State University of Economics, Tashkent, Uzbekistan

Maftuna Bekmirzaeva
Tashkent State University of Economics, Tashkent, Uzbekistan

ABSTRACT

As a result of the rapid development of the digital transformation process, ERP (Enterprise Resource Planning) systems are becoming increasingly important for effective management of enterprises. This article analyzes the key performance indicators (KPIs) used to evaluate the success of ERP systems. Recommendations are given on the advantages of ERP systems for enterprises, the results of their implementation, and increasing their effectiveness. The level of success of ERP systems is assessed based on such indicators as financial efficiency, user experience, process automation, and cost optimization. The article also analyzes scientific research and their results for the effective implementation of ERP systems.

KEYWORDS

ERP system, KPI, business process automation, investment efficiency, user experience, data reliability.

INTRODUCTION

In the modern world, where the process of digital transformation is rapidly developing, ERP (Enterprise Resource Planning) systems are becoming an integral part of effective business management. Enterprises widely use ERP systems to adapt to market demands, optimize costs, and make data-driven strategic

decisions. In today's global economic conditions, companies rely on ERP systems to optimize production processes, improve the quality of customer service, and maintain competitiveness. ERP solutions integrated with remote work format, cloud technologies, and artificial intelligence provide organizations with fast and efficient management capabilities. The success of ERP systems is manifested, first of all, in achieving effective management and optimization of the enterprise's business processes. They improve information exchange between different departments, accelerate and make decision-making processes more precise. ERP systems also allow reducing operating costs, efficient use of resources, and automation of production processes.

In addition, a user-friendly interface and ease of use of the system are also important factors determining its success. As a result of the adaptation of employees to the system and its effective use, labor productivity increases. ERP systems also serve to improve the quality of customer service, strengthening the competitiveness of the enterprise.

In general, the success of the ERP system depends on its compliance with the needs of the business, its effective operation, and the fact that it brings real benefits to the organization. A properly selected and implemented ERP system contributes significantly to the development of the enterprise. Evaluating the success of ERP systems is important for analyzing their achievement of expected results, investment efficiency, and impact on business processes. Therefore, organizations strive to maximize the benefits of ERP systems by conducting real-time monitoring and evaluating results based on KPI (Key Performance Indicators – "Key Performance Indicators") [1].

A number of scientific studies devoted to the study of the success of ERP systems have been conducted by scientists, there are topics of scientific research close to the topic of this study. Below are some of the research papers on this topic:

Advantages of Using ERP Systems in Raw Material Inventory Management: This article examines the importance and advantages of ERP systems in raw material inventory management. ERP systems play an important role in automating the process of managing raw material reserves, increasing efficiency, and proper data analysis [2].

Advantages of Using ERP Systems in Supply Chain Management: This article provides information about ERP systems and analyzes their application and advantages in supply chain management. ERP systems allow managing enterprise processes such as finance, supply, production, personnel management, sales, and service provision through a single platform [3].

Issues of increasing management efficiency and ensuring economic security through the use of digital technologies in enterprise management: This article extensively covers the development trends of digital

technologies, the possibilities of ensuring economic security and increasing management efficiency through their use in the management system of industrial enterprises [4].

These studies are aimed at studying the application of ERP systems in various fields and the factors of their success. The successful implementation of ERP systems plays an important role in increasing the efficiency of enterprises, optimal resource management, and ensuring competitiveness.

METHODS

To assess the success of ERP systems, enterprises use various key performance indicators (KPIs). These indicators allow for accurate measurement and analysis of the effectiveness of the results achieved through the ERP system. The most important KPIs and their significance are analyzed below [5,6]:

1. Financial indicators - after the implementation of the ERP, it is necessary to analyze the decrease in costs, increase in revenues, and return on investment (Return on Investment - ROI);

2. Operational efficiency - an assessment of the reduction in the time of production or provision of services as a result of the automation of work processes;

3. User accessibility - The level of employee use of the ERP system and their level of satisfaction is an important factor;

4. Customer satisfaction - the speed of order fulfillment, the quality of customer service, and the customer's attitude towards the advantages arising from the ERP system are assessed;

5. Data accuracy and reliability - the level of accuracy of data entered through the ERP system and the number of errors occurring in the system are controlled.

Based on this analysis, it is advisable to develop the following proposals [7,8]:

1. Assessment of the ERP system's suitability for needs - it is necessary to conduct a detailed analysis of its suitability for the needs of the company before implementing ERP;

2. Personnel Training and Training - it is recommended to conduct regular training for employees for the effective use of the ERP system;

3. Continuous improvement of the ERP system - the ERP system must adapt to changes in the needs of the enterprise, therefore regular monitoring and optimization should be carried out;

4. Automation of the KPI system - it is recommended to use analytical tools to automate the process of assessing the success of the ERP system. By assessing and improving the success of ERP systems, enterprises can increase efficiency, optimally manage resources, and achieve strategic goals faster.

RESULTS AND DISCUSSION

ERP systems serve to increase efficiency by integrating and automating various business processes of enterprises. However, to assess the success of the implementation of these systems, it is necessary to establish specific KPIs. Below are the main indicators used to measure the success of ERP systems implementation [9,10]:

1. Project timeliness: It is important to assess the completion of the ERP implementation project within the established timeframe. If the project is delayed, this can lead to additional costs and excessive resource consumption.

2. Compliance with the budget: The implementation of the project within the established budget is an important indicator of its success. Exceeding the budget can indicate incorrect planning of financial resources or unexpected problems.

3. User-friendliness: The level of employee satisfaction with the new ERP system is an important indicator of the project's success. For users to accept the system and use it effectively, it must meet their needs and requirements.

4. Efficiency of business processes: After the implementation of the ERP system, an increase in the speed and efficiency of business processes is expected. For example, order processing time can be reduced or inventory processes can be simplified.

5. Data accuracy and reliability: The accuracy and reliability of data entered and received through the ERP system should be increased. This will help improve decision-making processes.

6. Cost reduction: After the implementation of the ERP system, a reduction in operating costs is expected. For example, labor costs can be reduced as a result of the automation of manual work.

7. Customer satisfaction: The ERP system should improve the quality of customer service. This is achieved by fulfilling customer orders faster and more accurately, as well as by improving customer communication processes.

8. Flexibility and scalability: The ERP system should be able to adapt to changing business needs and expand in the future. This allows you to update and expand the system in accordance with the growth and development of the company.

9. Number of errors and failures: After the system is implemented, the number of errors and failures occurring in its operation is monitored. Their reduction indicates the stability and reliability of the system.

The KPIs used to evaluate the success of ERP systems can be expressed using mathematical expressions as follows:

1. Investment efficiency (ROI - Return on Investment):

$$\text{ROI} = \frac{(ERP\ Profit - ERP\ Costs)}{(ERP\ Costs)} \times 100\%$$

This indicator is used to assess the economic benefits of the ERP system.

2. Process Efficiency:

$$\text{PE} = \frac{ERP\ process\ time\ after\ implementation}{Process\ time\ before\ ERP} \times 100\%$$

If the result is below 100%, the ERP system is considered to have accelerated the processes.

3. UserSatisfaction:

$$\text{US} = \frac{Number\ of\ satisfied\ users}{Total\ number\ of\ orders} \times 100\%$$

This indicator helps to assess the level of user satisfaction with the ERP system.

4. Order Fulfillment Rate:

$$\text{OFR} = \frac{Number\ of\ completed\ orders\ on\ time}{Total\ orders} \times 100\%$$

The ERP system is used to measure the effectiveness of customer service.

5. Data Accuracy:

$$\text{DA} = \frac{Number\ of\ correct\ data\ in\ the\ ERP\ system}{Total\ number\ of\ entered\ data} \times 100\%$$

Indicates the level of accuracy of the data managed through the ERP system. These KPIs are important in assessing the effectiveness of ERP systems and making decisions on their improvement.

Based on the above indicators, the success of the ERP implementation project will be assessed. For each indicator, specific goals should be set and monitored regularly. This allows the company to maximize the benefits of the ERP system and continuously improve business processes.

CONCLUSION

ERP systems play an important role in the effective management of enterprises and optimization of business processes. The implementation of the ERP system within the planned timeframe and budget, as

well as the high level of user utilization of the system, are also important indicators of its success. Also, as a result of business process automation, increased labor productivity, reduced operating costs, and improved customer service quality reflect the expected results of the ERP system. The accuracy and reliability of the information provided by the system serve to accelerate decision-making processes and ensure effective management. Therefore, to implement and maximize the use of ERP systems, it is necessary to constantly update the system, train employees, and monitor key performance indicators (KPI). A properly selected and effectively managed ERP system can bring real profit to the enterprise and serve to increase its competitiveness. Based on this analysis, 9 key indicators were developed, which are used to measure the success of ERP systems.

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