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Research on New Trends and Development Prospects of Enterprise Resource Planning (ERP) Systems

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Abstract: This article analyzes modern trends and development prospects of ERP systems. The importance of ERP systems in automating business processes and increasing efficiency is highlighted, and their integration with cloud technologies, artificial intelligence, IoT and mobile applications is discussed. Also, the development prospects of ERP systems are considered as artificial intelligence-based automation, increased cybersecurity measures, flexibility and the creation of user-friendly interfaces. Continuous improvement of ERP systems serves to increase business efficiency and ensure competitiveness.

Keywords: ERP systems, cloud technologies, artificial intelligence, IoT, mobile ERP, automation, cybersecurity, business processes, digitalization, innovative solutions.

Introduction: In recent years, enterprises and organizations have been paying more and more attention to ERP (Enterprise Resource Planning) systems in order to automate and optimize their business processes. In particular, studies published in 2023 - 2024 show that the integration of ERP systems with cloud technologies, artificial intelligence and IoT is further expanding their functional capabilities. Leading ERP platforms such as SAP, Oracle, Microsoft Dynamics are

being actively implemented by companies worldwide, helping to increase the efficiency of business processes. A number of works are also being carried out in Uzbekistan in this regard: large industrial enterprises and state organizations are achieving centralization and digitalization of operational processes by implementing ERP systems. This article focuses on modern trends in ERP systems, innovations that affect the development of the industry, and future development prospects.

In the study of ERP systems, researchers and specialists have used various methods and techniques, each of which is aimed at improving the efficiency of the system and identifying development trends. In scientific research, empirical, experimental and analytical approaches are widely used. Within the framework of empirical methods, the process of implementing ERP systems in enterprises is studied and practical results are analyzed. Experimental methods test various modules of ERP systems and assess their impact on business processes. At the same time, mathematical modeling and large-scale data processing methods are used to forecast the future development prospects of ERP systems. Researchers use SWOT and GAP analysis methods to evaluate software architecture and compare different ERP systems. In addition, statistical analysis methods are used to study the impact of ERP systems on enterprise efficiency and calculate economic profitability indicators. In recent years, research on integrating ERP systems with artificial intelligence and cloud technologies has also expanded, and machine learning (ML) algorithms are being used to analyze data. Therefore, it is observed that a combined approach to researching ERP systems - that is, combining technological, economic and management methods - gives the most effective results [1-3].

METHODS

ERP systems play an important role in automating business processes and increasing efficiency. In recent years, ERP systems have been developing based on new trends, becoming more flexible and innovative solutions. The demand for ERP systems based on cloud technologies is increasing, offering more convenient and cost-effective solutions for enterprises. The integration of artificial intelligence (AI) and machine learning (ML) algorithms into ERP systems optimizes business processes and increases the ability to make quick and accurate decisions. Internet of Things (IoT) technologies allow for real-time monitoring of production and logistics processes, helping to effectively use resources. Mobile ERP systems, on the other hand, provide employees with the opportunity to connect to the system from anywhere, making business processes more flexible and faster. At the same time, the development of ERP systems also requires strengthening cybersecurity measures, since data protection and confidentiality are of great importance for enterprises. The future of ERP systems is closely linked to the widespread introduction of artificial intelligence, IoT, and cloud technologies, the use of which will serve to increase competitiveness and efficiency for enterprises [4].

The development of these systems in recent years has been driven by several important trends that are making ERP platforms more flexible, intelligent, and user-friendly [5]:

1. Transition to cloud ERP systems;

2. Expansion of artificial intelligence and analytical capabilities;

3. Integration with IoT;

4. Mobile ERP systems;

5. Security and data protection.

The above are the development trends of ERP systems, and the direction in which they are changing in modern business can be described in detail as follows [8-9]:

1. Transition to cloud ERP systems. Cloud ERP platforms are a more convenient and cost-effective solution compared to traditional local ERP systems. Thanks to cloud technologies, companies are able to use fast and uninterrupted services without large software costs. Cloud ERP systems also provide real-time access to data, making it easier to work remotely and manage multidisciplinary business processes;

2. Expanding artificial intelligence and analytics capabilities. The integration of artificial intelligence (AI) and machine learning (ML) algorithms into ERP systems helps to further automate and optimize business processes. The capabilities of AI-based data analysis, forecasting, and decision-making are expanding, allowing enterprises to effectively implement strategic planning. As a result, ERP systems are greatly helping enterprises improve their financial position, resource utilization, and operational efficiency;

3. Integration with IoT. IoT is taking ERP systems to a new level. With the help of IoT technologies, processes such as production, logistics and supply chain are monitored in real time, and data is automatically transmitted to the ERP system. This allows for reducing errors, optimizing processes and using resources more efficiently. In particular, the integration of ERP systems with IoT is gaining great importance in intelligent management and automation of production processes;

4. Mobile ERP systems. In today's modern business environment, mobile ERP systems are becoming

increasingly important. Employees can connect to the ERP system via a smartphone or tablet and access data, view reports, and manage operational processes from anywhere. This helps business processes run more quickly, flexibly, and efficiently. Mobile ERP systems are especially important in the areas of trade, logistics, and service;

5. Security and data protection. Since ERP systems contain the most important data of enterprises, the issue of cybersecurity remains relevant. Modern ERP systems are implementing protection mechanisms such as encryption, multi-factor authentication, and firewalls. Data backup and secure storage measures are also being strengthened, reducing the risk of enterprises losing data or being exposed to cyberattacks.

These trends are further developing ERP systems and enabling enterprises to implement innovative solutions. In the future, further development of ERP systems based on artificial intelligence, IoT and cloud technologies is expected. This process is closely related to modern technologies and changes in business needs, and the prospects for the development of ERP systems are formed in the following main directions [10-12]:

1. Deep integration of artificial intelligence and automation. Deeper integration of artificial intelligence and machine learning technologies into ERP systems is expected. This will expand the possibilities for enterprises to forecast, make recommendations and automate processes. For example, the possibilities for predicting costs in advance or increasing the efficiency of production processes will increase;

2. The advantage of cloud ERP and SaaS model. The role of cloud technologies in the development of ERP systems is increasing. The trend of providing ERP systems based on the “Software as a Service” (SaaS) model is strengthening, and companies will receive faster and cheaper solutions. Cloud ERP solutions provide greater flexibility and the ability to work from anywhere;

3. Increased integration of IoT and ERP. The development of IoT technologies will allow ERP systems to receive and process data in real time. This will be especially important in production, logistics and supply chain management. Enterprises will be able to fully control the movement and performance of their assets;

4. Blockchain technology and increased security. The use of blockchain technologies will expand to increase the security of ERP systems. This will be especially important for protecting transaction data, ensuring transparency in supply chains, and preventing document forgery;

5. Flexibility and user-centricity of ERP systems. Future ERP systems will be more flexible and adaptable to user needs. With the help of no-code and low-code platforms, businesses will be able to quickly adapt and update their ERP systems without programmers.

The development prospects of ERP systems serve to create a more efficient, secure and digitalized business environment for enterprises. These trends create the basis for ERP systems to become more intelligent, integrated and innovative.

RESULTS

The development of ERP systems plays an important role in optimizing business processes and increasing efficiency for enterprises. In recent years, integration with cloud technologies, artificial intelligence and IoT has taken ERP systems to a new level, expanding their capabilities. The introduction of mobile ERP systems is helping to make business processes more flexible and agile. At the same time, the development prospects of ERP systems are focused on artificial intelligence-based automation, analysis and forecasting of large volumes of data, as well as strengthening security, ensuring data reliability and protection from cyber threats will remain one of the most important areas in the future.

It is also expected that the functionality of ERP systems will further expand, offering flexible platforms for small and medium-sized businesses. As a result of the development of artificial intelligence and machine learning algorithms, ERP systems will be able to independently optimize business processes and assist management in making strategic decisions. In addition, the integration capabilities of ERP systems are also increasing. In particular, their compatibility with cloud technologies and IoT devices will create the opportunity for enterprises to exchange information in real time, further simplifying production processes and helping to use resources more efficiently.

ERP systems are an important tool that helps enterprises adapt to market demands, and their continuous development serves to increase business efficiency. Therefore, it is important for companies to focus on new technologies when implementing ERP systems and make the most of their capabilities. In the future, further improvements to ERP systems are expected to bring greater efficiency to enterprises by automating business processes and increasing analytical capabilities.

CONCLUSION

The modern development of ERP systems is helping to make business processes more efficient and automated.

While the transition to cloud ERP systems provides enterprises with savings and flexibility, artificial intelligence and IoT technologies are playing an important role in optimizing processes. The development prospects of ERP systems are associated with increasing cybersecurity, the use of blockchain technologies, the creation of user-friendly interfaces, and the provision of flexible solutions. In the future, the improvement of ERP systems will serve to increase the competitiveness of businesses and expand the possibilities for making quick strategic decisions. Therefore, companies should take into account new technologies when implementing ERP systems and make the most of their capabilities.

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