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**OPTIMIZATION OF EXPENDITURES IN BUSINESS PROCESSES VIA CLOUD
TECHNOLOGY: A SCIENTIFIC INQUIRY**

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Cloud technology has its roots in early ideas of providing access to computing resources remotely over a network. However, the concept of cloud computing as we know it today began to take shape in the early 2000s.

In the early 2000s [1, 4], companies began to realize the potential of cloud technologies to manage and distribute computing resources more efficiently. One of the important events in the history of cloud technology was the emergence of Amazon Web Services (AWS) in 2006, which offered a wide range of cloud services, including data storage, computing power and many others.

It should be noted that with the development of virtualization technologies and the spread of broadband Internet, cloud technologies have become increasingly accessible and popular. Major technology companies such as Microsoft, Google and IBM have also been introducing their cloud platforms and services.

Over time, cloud technologies have become an integral part of the modern IT infrastructure of many companies and organizations, providing flexibility, scalability and cost-effectiveness. Today, cloud technologies continue to evolve, introducing new capabilities such as artificial intelligence, big data analytics and the Internet of Things, and they remain an important factor in the digital transformation of business and society.

Cloud computing is an information technology delivery model [3, 7] in which users access computing resources (such as processing power, data storage, applications and services) over the Internet, typically through a web browser, without the need to invest in their own infrastructure .

The role of cloud technologies in the digital economy. Cloud technologies play a key role in the digital economy, providing the basis for innovation, business growth and improved productivity. Here are several ways [8, 10] how cloud technologies affect the digital economy:

- flexibility and scalability: cloud platforms allow companies to quickly scale their computing resources depending on needs, which is especially important in a rapidly changing digital environment.
- economic efficiency: the use of cloud services reduces the cost of IT infrastructure, since the company no longer needs to invest in its own servers and equipment.
- innovation: cloud platforms provide access to advanced technologies such as artificial intelligence, data analytics, Internet of things and blockchain, which promotes innovation and the development of new business models.

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- global access and collaboration: cloud solutions provide the ability to access data and applications from anywhere in the world using the Internet, which simplifies collaboration and information exchange between employees and partners.

- Security and Compliance: Cloud service providers typically provide high levels of security and compliance, making cloud solutions attractive to companies operating in regulated industries.

- small business development: Cloud technologies make advanced IT resources available to small and medium-sized enterprises, allowing them to compete with large players in the market and expand their business without significant capital investments.

These factors confirm that cloud technology plays an important role in the development of the digital economy, improving efficiency, driving innovation and facilitating business growth in the modern world. According to research [2, 9], cloud technologies remain relevant in the modern world due to a number of reasons:

-Flexibility and scalability: Cloud platforms allow organizations to scale their resources based on needs, making them an ideal choice for companies of any size.

-cost-effectiveness: the use of cloud services reduces infrastructure and hardware costs, since business owners no longer need to purchase and maintain their own servers and equipment.

-Innovation and digital transformation: Cloud platforms enable the development of new technologies and capabilities such as artificial intelligence, data analytics, Internet objects and much more, which help companies become more competitive.

-Security and Reliability: Cloud service providers typically provide high levels of data security and reliability, making cloud solutions attractive to companies, especially given the growing cybersecurity threats.

In our opinion, the main characteristics of cloud technologies include:

1. On-demand distancing: Users can instantly access needed resources as needed, without having to pre-order or install hardware.

2. Scalability: Cloud services provide the ability to scale computing resources depending on the needs of a business or project, allowing you to quickly adapt to changing conditions.

3. Sharing: Resources in the cloud can be accessed simultaneously by multiple users in different locations, providing flexibility and ease of collaboration.

4. Pay-per-use: Cloud resource usage charges are often based on a “pay-for-what-you-use” model, allowing organizations to optimize IT costs and avoid the costs of unused resources.

According to research [5, 6], today there are the following problems of cloud technologies:

-Data security: Moving data to the cloud may involve the risk of data leakage or unauthorized access.

-reliability and availability of services: unavailability of the cloud can lead to business downtime and data loss.

-High cost: Using cloud services can be expensive for small companies.



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-compatibility and integration: difficulties in compatibility and integration of various cloud services with each other.

Let's consider their solutions in detail according to the description of the problem:

Data security. Use of data encryption mechanisms at rest and in motion to protect information from unauthorized access. Implement authentication and authorization mechanisms, such as multi-factor authentication, to ensure secure access to cloud resources. Regularly conduct security audits and event monitoring for early detection and prevention of possible security incidents. Training company employees in the rules of safe use of cloud services and regularly informing them about potential threats and methods of preventing them.

Reliability and availability of services. Use of multiple regional data centers and data duplication to ensure high availability and fault tolerance of cloud services.

High price. Optimize the use of cloud resources by monitoring and managing costs, such as turning off unused virtual machines or resources during inactivity. Leverage cloud provider pricing models, such as pay-per-use or pay-for-what-you-use models, to reduce cloud service costs. Consider using open and free cloud solutions where possible, and moving to cheaper cloud providers while maintaining the required functionality.

Compatibility and integration. Use of standardized protocols and APIs to ensure interoperability between different cloud platforms and facilitate integration between them. Development and use of specialized solutions for integrating cloud services, such as data adapters or data integration platforms, to ensure the collaboration of various cloud and local applications and services.

At the end of the study, we concluded that by leveraging cloud technologies, organizations can significantly reduce IT costs, increase the efficiency of their operations, and speed up the deployment of new applications and services. Cloud technologies provide users with the ability to access their data and applications from anywhere in the world and from any device, which increases their mobility and productivity.

However, for all their benefits, cloud technologies also present some challenges and risks, such as data security, service reliability, high cost, and compatibility and integration difficulties. However, these challenges can be successfully addressed through appropriate strategies and technologies, such as encryption and authentication mechanisms, data backup strategies, cost optimization, and the use of interoperability standards. Overall, cloud technologies represent a powerful tool for the digital transformation of business and everyday life, providing the flexibility, scalability and accessibility that are necessary to successfully function in today's information society.

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