

**ORGANIZATIONAL AND ECONOMIC MECHANISMS FOR IMPROVING WATER
CONSUMPTION MANAGEMENT IN ECONOMIC SECTORS BASED ON
INNOVATIVE TECHNOLOGIES**

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Abstract: This article substantiates the necessity of introducing innovative technologies to improve the efficiency of water resource use in economic sectors. At the same time, the shortcomings of the existing management system are analyzed, and organizational and economic mechanisms for their elimination are proposed. Ways to optimize water consumption based on modern technologies such as digitalization, IoT, and artificial intelligence are presented.

Keywords: water resources, innovative technologies, digitalization, organizational-economic mechanism, IoT, AI.

Introduction: Climate change and the limited nature of water resources require the introduction of new approaches to water use in economic sectors. It is becoming increasingly difficult to achieve efficiency with traditional management methods. Therefore, improving water consumption management mechanisms through the introduction of innovative technologies has become an urgent issue.

Today, taking into account technological changes that affect all social relations, it has become crucial to consider economic objects and phenomena in their state of motion and constant variability [1]. These innovations naturally accompany the progressive development of economic systems. Therefore, as part of an economic object and economic system, an enterprise must seek innovative technological solutions to increase the efficiency of its activities, taking into account the rational use of available resources. Thus, the need arises to study the innovative potential of enterprises together with their resource potential, which requires theoretical and scientific-practical approaches to reflect the overall innovative and resource potential, determine its essence and structure, and propose methods for managing such potential. Solving such problems is of great importance for enterprises in any sector. This is especially relevant for industrial enterprises that are resource-intensive, including water supply enterprises. Regarding the activities of such enterprises, accounting, rational use of water resources (due to their instability in quality and quantity), and practical and innovative technologies are required [2]. According to the annual reports of the United Nations, by 2030, a global challenge for states is to "achieve universal and equitable access to safe and affordable drinking water for all." Solving this task is the main goal of the activities of resource supply organizations in the water supply sector. Water supply enterprises must provide consumers with guaranteed quality drinking water to ensure a decent standard of living for the population and the sustainable development of their activities

through the application of innovative technologies in industry. This requires improving enterprise management, including the management of innovative and resource potential, which is also confirmed by the literature.

Literature Review: Numerous studies conducted by scientists worldwide are devoted to studying the phenomenon of potential, its characteristics and features, identification methods, and management models. Socio-economically, the goal of potential management is to ensure the sustainable development of a country, industry, or enterprise [3]. Depending on the territorial, economic, political, cultural, and other characteristics of economic objects, researchers analyze the potential, break it down into components, or consider its holistic nature using various means of potential management [4]. To manage this potential, it must be correctly assessed, as a number of studies have been conducted for various purposes. According to Yashin et al. (2021), innovative potential is a combination of production, financial, labor, and other resources, evaluation, and management that contributes to the successful development of a region. As Rakhmeeva (2020) noted, the main role in improving the economic efficiency of enterprises in the context of changing economic relations and institutional changes belongs to innovative potential. Studying the management of company performance through innovative potential addresses the issue of managing innovations in a highly competitive environment, rapid technological changes, and market uncertainty. Today, it is extremely important for enterprises to manage their innovative potential to introduce advanced innovative technologies into their production processes and survive [5]. Kansi (2021) presented an assessment of the country's innovative potential over the last few decades (using the USA as an example). The author proves the existence of a correlation between the innovative potential of enterprises and the overall state of the country's economy.

Research Methodology: The article utilized systematic analysis, comparison, functional approach, SWOT analysis, and statistical methods. At the same time, an analytical approach was applied based on existing scientific sources and practical experience in the sectors.

This research was systematized on the theoretical and methodological nature of issues related to the innovative and resource potential of water supply enterprises to obtain new scientific and practical results carried out in the following logical sequence [6]:

Development of an organizational-economic model for managing the innovative and resource potential of a water supply enterprise, taking into account the specific features of its activities for sustainable development. The management object, its components, external and internal environments, input and output parameters, methodological tools, and relationships between all elements of the model are determined.

Testing the organizational-economic model for managing innovative and resource potential using the example of "ANDIJON SUV TA'MINOTI" LLC in the process of adopting an innovative technological solution—an intelligent automation system for water supply management in the Andijan region.

Developing recommendations for each sub-potential to improve the management of the innovative and resource potential of the water supply enterprise.

To develop the elements of the organizational-economic model, we used general scientific methods of analysis and synthesis, structuring, and generalization. We identified the specific external and internal environment of the water supply enterprise, formed the concept and content of the category "innovative and resource potential of a water supply enterprise," and identified

the cumulative elements of such potential (sub-potentials). We also applied economic and mathematical methods of regression analysis [7] to evaluate innovations in the development of this potential resource. To assess the impact of introducing innovative technology on the innovative and resource potential and the resulting performance indicators of the enterprise, we used mathematical calculations to predict changes in the value of the innovative and resource potential until 2025, including financial-economic and organizational-managerial aspects [8]. The obtained indicators were expressed by the following set: real-time water loss, total water loss, revenue, profit, costs, and volume of water consumed.

Currently, the use of water resources remains inefficient in many sectors (agriculture, industry, energy). Accuracy in water accounting is insufficient, and technological losses are high [9]

The main reasons for this are:

- Outdated infrastructure;
- Lack of water metering devices;
- Low level of digital technology implementation;
- Financing problems.

Innovative technologies are tools that enable precise management of water resources. The main directions are:

- IoT (Internet of Things): monitoring water flow in real time via sensors;
- AI (Artificial Intelligence): predicting and optimizing water consumption;
- Big Data: making effective management decisions based on large volumes of data[10];
- GIS technologies: identifying and controlling the geolocation of water sources.

The new model for managing water consumption should consist of the following components:

- Organizational aspect;
 - Establishment of digital control centers;
 - Implementation of project-based management systems.
- Economic aspect;
 - Setting water prices based on differential tariffs;
 - Providing tax incentives to enterprises implementing innovative technologies;
 - Expanding public-private partnership (PPP) mechanisms to attract investments[11].

Conclusion and Recommendations: Efficient use of water resources is a key factor for the sustainable development of the economy. Managing it based on innovative technologies helps solve existing problems. We offer the following recommendations:

- Digital systems for water accounting should be implemented in each sector;
- Government should develop programs encouraging innovative technologies;
- Projects and platforms should be created in cooperation with research institutions.

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