

# The Impact of Digital Technologies on Environmental Management in the Public Administration System of the Regions

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## Abstract

The main purpose of the article is to analyze the features of the impact of digital technologies on environmental management in the public administration system of the regions. The revival of the economy and its digitalization, which emerged after the first wave of the economic crisis, is already fraught with an aggravation of the ecological situation in the region. Of course, the conventional model of economic growth has by now exhausted its capabilities and can be characterized as environmentally unsustainable. Digital technologies bring changes that cannot be ignored. Based on the results of the study, key aspects of the impact of digital technologies on environmental management in the public administration system of the regions were identified.

## Keywords:

Digital Technologies, Management, Public Administration, Region

## 1. Introduction

Rational nature management is based on the conceptual doctrine of the trinity of the "nature - economy - population" system. All elements of this system are interconnected and changes in each of them cause the transformation of both its individual components and the entire system as a whole. Nature in this system is the origin in which man appeared, and then the material world formed by him. Man is a part of nature and separate laws of nature apply to it. The inverse relationship is not symmetrical: man acts on nature and changes it, but social laws do not act in nature (they are secondary to it). The interaction between other pairs of the system is also not equal. Scientific and technological progress is not identical with the progress of society as a whole, and its current level does not meet not only the interests of many groups of people, but also the evolution of the biosphere.

Environmental hazard factors of regions (environmental risk) are anthropogenic and natural impacts (disturbances) that can lead to a negative change in the state of the environment and human health, in particular, they are anthropogenic production factors. We are talking about the factors initiating the ecological danger of the regions. For example, environmental pollution factors can be divided into material (gas and dust emissions into the atmosphere, discharges of harmful substances into water bodies, solid waste) and energy (thermal emissions, noise, ionizing radiation). In the resource-ecological approach, the objects of ensuring environmental safety are people and natural resources. This gives reason to believe that the goal of ensuring environmental safety is an adequate human environment and meeting the need for natural resources.

The development of environmental management in the public administration system takes time. Its allocation as an independent type of activity in the general structure of management is due to the urgent need to overcome environmental problems and ensure the environmental safety of society.

The environmental management system allows the region to achieve a qualitatively new level of interaction with nature, to make systematic and effective environmental protection activities. It provides for the implementation of the necessary measures to improve this activity while maintaining the economic interests of the state and obtaining additional advantages in a competitive environment. The environmental management system is a modern mechanism for managing environmental activities, recognized at the international level.

The main purpose of the article is to analyze the features of the impact of digital technologies on environmental management in the public administration system of the regions.

## 2. Methodology

To determine the impact of digital technologies on environmental management in the public administration system, the following methods were applied: induction and deduction, comparison and systematization when characterizing environmental management and the public administration system; synthesis and analysis - to determine the content of the impact of digital technologies on environmental management in the public administration system; morphological analysis - to clarify the essence of the modern understanding of environmental management and its elements; abstract-logical - for theoretical generalizations and conclusions of the study on the problem of the impact of digital technologies on environmental management in the public administration system.

## 3. Research Results and Discussions

Objective and subjective disagreement in the actions of state and local authorities in the field of environmental protection led to an increase in the scale of the eco-destructive impact of economic activity on the environment. The objective reasons for such a process are associated with insufficient legal and regulatory support, while the subjective ones are related to the lack of clear coordination of the actions of management structures and the slow introduction of scientific developments into management practice. Improving the ecological situation in the region is impossible without the introduction of a comprehensive system of organizational and economic transformations that concerned different levels of environmental management.

The environmental management system of the region should be considered as a component of three relatively separate, but at the same time interconnected subsystems: the enterprise, the territory and the economy as a whole. This approach

allows us to single out three hierarchical levels of management and identify the ecological and economic contradictions that arise between them. If we consider the management of the territory as the achievement of balanced social, environmental, economic, industrial relations, the system of territorial environmental management should be aimed at the formation of a fundamentally new state environmental policy based on the priorities and goals of environmentally balanced socio-economic development. It is necessary to find new forms of managing the development of productive forces, as well as to form effective regulators of the ecological orientation of the economy in the system of public administration.

To form specific organizational economic foundations for the greening of regional management, there should be an environmental and economic assessment of its level and, accordingly, it is necessary to green the management of integrated regional structures, since these are large industrial enterprises, financial and credit institutions that can largely determine the environmental and economic efficiency of the functioning of economic systems. . Ecologization of regional management is defined as a process of transformation of the regional management system in the direction of its orientation towards solving environmental problems and ensuring the practical implementation of the exo-balanced and economic production activities of the region in conjunction with the interests of external and internal subjects of its relations [1-3].

The main aspects of the application of digital technologies in the environmental management system of the region are presented in Fig. 1.

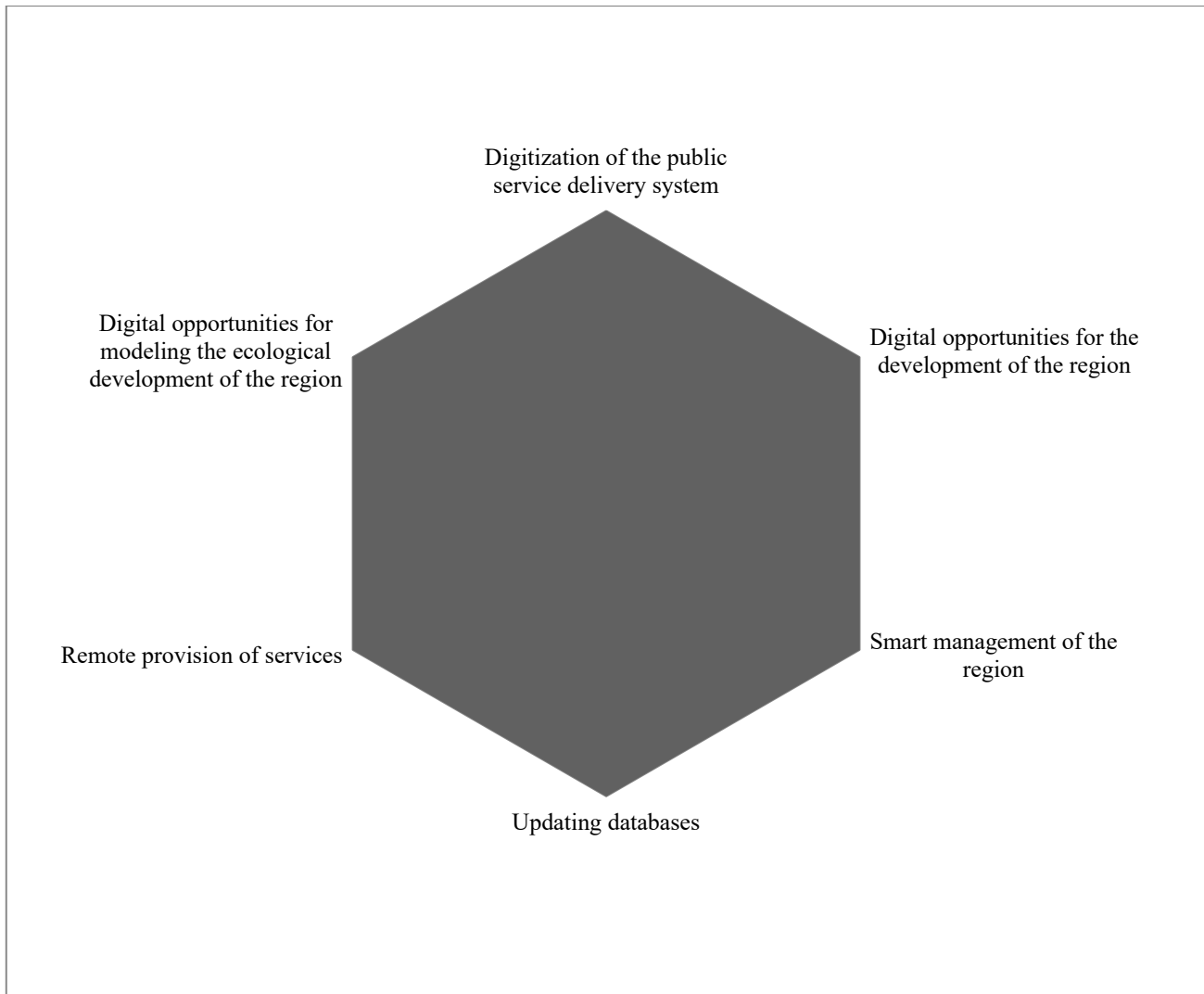


Fig.1. The main aspects of the application of digital technologies in the environmental management system of the region

In the system of public administration, an important place is given to economic programming, in particular, the development and implementation of comprehensive targeted programs as an effective tool for environmental management.

Ecological programming is considered, on the one hand, as a system of state support for national development programs, and on the other hand, as a system for developing such programs by modeling methods. Environmental program management is defined as the process of solving environmental and socio-economic problems over a long period of time

by organizing resources and their orderly application to solve this problem using digital technologies.

In a public administration system, it is necessary to take into account external restrictions that affect all components of the system. The internal constraints of the system are determined by its state and contribute or hinder the implementation of changes and affect the management process. Examples of internal constraints are the presence or absence of information on which the analysis should be based and its quality; the number and quality of personnel involved in the implementation of the program, positive or negative attitudes towards changes,

habitual methods of work, the presence of organizational structures and other factors related to the sustainable state of the system. Both external and internal constraints must either be accepted as they are or subsequently changed [4-6].

The subject of environmental management is the system of relations between the organization and the controlling environmental structures, which arises and forms in the process of using methods of influence (management and stimulation) on environmental protection activities, environmental adverse situations. Environmental management is based on the observance of the following principles: prevention and timeliness of problem solving, prevention of critical events, responsibility for damage caused, integration of efforts to implement environmental programs at different levels and in areas of knowledge, formation of environmental awareness of people, consistency, consistency in solving environmental problems

The development and formation of environmental management is based on the observance of certain principles and technologies. Through them, they establish rules and regulations that are mandatory for all subjects and objects of environmental management, coordinate and regulate all aspects of environmental protection, and choose the best methods for implementing management. The formation of the basic principles is influenced by the system of universal human priorities and values.

The environmental management of the region concerns all spheres of human activity without exception, achieving coherence is a requirement for balanced development (sustainable development, where environmental and social components are harmoniously combined). Such harmonization is possible only on the condition that humanity will be guided by ecological consciousness and culture, observe certain restrictions, influence the activities of transnational corporations, etc. Environmental management is designed to perform a set of functions, each of which is focused on overcoming specific environmental problems. The function of environmental management is a type of activity due to the need for division of labor and specialization in the field of management in order to effectively solve a set of environmental problems.

To ensure the performance of environmental management functions based on compliance with its principles, it is necessary to create international,

national, corporate, public environmental management systems. This should be guided by the following scientific and methodological foundations: the development, implementation, operation of environmental management systems should be based on environmental laws and principles; the methodology of environmental management must comply with the national, global principles of harmonization (the theory of sustainable development); environmental management should be based on world and national standards and regulations, the methodology of the system-environmental approach; environmental management functions should be consistent with administrative management functions; environmental management should be implemented in accordance with the requirements of its economic and social efficiency; the environmental management system of public and private organizations requires a unified information support system. The functions of environmental management are divided into general, carried out by legislative, executive and legal bodies, and special, carried out by entities with special powers in accordance with applicable law [7-10].

A feature of the current environmental situation is the digital technological level of using the laws of nature, associated with the transition from the macro level through the micro level to the molecular and atomic levels. Modern production technology is a link in the interaction of society and nature. It gives society the opportunity to use natural substances and energy, to adapt the natural environment for human life. The significant impact of technologies on the environment indicates the low efficiency of nature management processes.

The main obstacles to the introduction of digital technologies in the environmental management system of the region in the public administration system are those presented in Fig. 2.

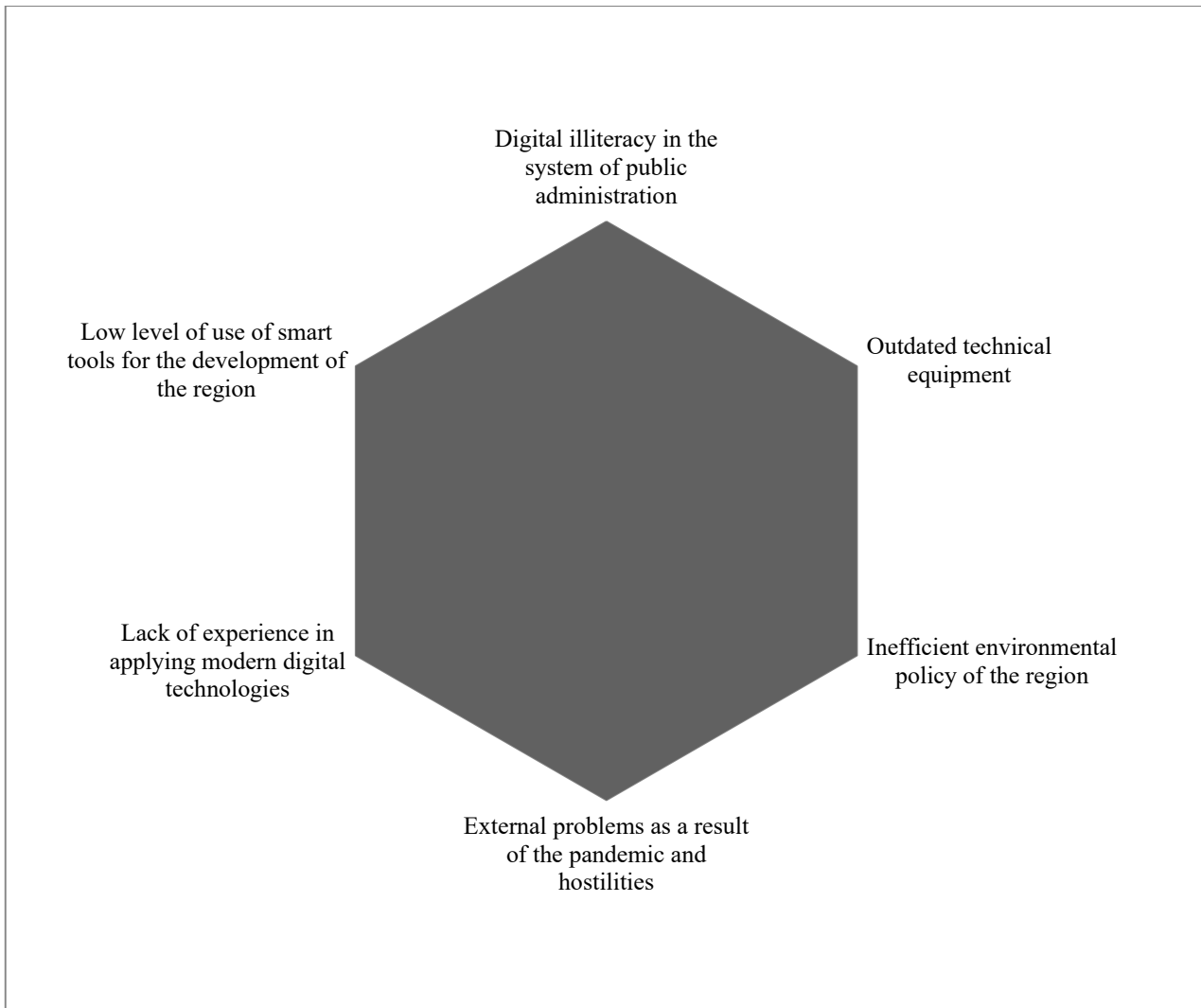


Fig.2. The main obstacles to the introduction of digital technologies in the environmental management system of the region in the public administration system

Being a general economic science, environmental management applies the data of specific economic sciences, as well as the natural sciences of geology, biology, soil science, forestry, meteorology, demography and other sciences, their conclusions and provisions necessary to substantiate the most effective methods for using the conditions and resources of nature. Environmental management of the region in the system of public administration has both theoretical and practical significance. In the conditions of the functioning system of the national economy in the country, environmental management is now called upon to give specific recommendations

on various ways of using natural resources. In a broader sense, environmental management should contribute to the development of the foundations of the concept of sustainable environmental and economic development. Such development implies a rejection of the concept of extensive economic growth that has developed in practice, which underlay the development of the world economy and natural resources system, based on the idea of the inexhaustibility and unlimited possibilities of the natural environment for self-healing. Environmental management is closely related to the country's economy and forms the initial information about the

need to use natural resources in solving the problems of efficient development of production. The emergence of new tasks for the rational use of natural resources and environmental protection is due to the tangible need for management practice. A comprehensive program-targeted approach to the development of new forms of ownership and a market economy reflects the interconnection of all sections of the environmental management program [11-15].

The use of natural resources should, on the whole, be such that it helps to reduce costs and increase profits in social production. The available raw materials and energy should be used most efficiently. Their withdrawal must be thrifty so as not to overstep certain boundaries, after which the self-renewal of resources becomes impossible. This requires every kind of rationalization of production, its complexity, which implies the minimization of waste, the elimination of losses, and the widespread use of secondary raw materials. All tasks for the economical, economic use of natural resources must be combined with the maximum possible preservation of the environment by, on the one hand, improving technology and reducing emissions, and on the other hand, all kinds of cleaning from pollution, minimizing possible damage to human health and life, means of production, buildings and structures.

Achieving the UN sustainable development goals is one of the main tasks of the 20th century. These goals can be achieved through the introduction of an effective environmental management system in business, the basics of environmental marketing. It is important to improve the environmental friendliness of production processes in general. In the 21st century, environmental entrepreneurship is of particular importance, because young scientists and entrepreneurs are able not only to make a profit, but also to ensure the balanced and safe development of our state and the world as a whole. More scientific attention should be paid to this in future studies.

#### 4. Conclusions

Summing up, it should be noted that the protection of the environment, ensuring the environmental safety of the country, the regulation of nature management is carried out by legal (legal), organizational, administrative and economic methods. The legal mechanism is the basis of public administration of environmental safety, the basis for the implementation of state environmental policy. He is obliged to ensure the implementation of scientifically based principles of environmental protection, the optimal use of natural resources and the environmental safety of people's life; establish scientifically grounded rules of behavior for people, enterprises and organizations on the environmental aspect of activities.

The main task and role of public administration in the field of environmental protection and rational nature management is to ensure the environmental safety of the country and regions, the formation of state environmental policy, the implementation of environmental measures, legislative environmental creativity, scientific and practical research, monitoring and control of the state of the environment, planning, forecasting and development of environmental protection programs, conducting environmental reviews and issuing licenses for use resources, holding accountable for violating environmental standards, and much more.

The study has limitations and they concern not taking into account the characteristics of many regions. Subsequent studies should provide for the specification of the region and the identification of mechanisms for ensuring environmental management on an individual basis.

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