

## **Adaptive data-driven governance & administration of education during instability & in times of crisis**

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**Abstract.** *Modern education operates in conditions of instability and crisis phenomena, which makes traditional management approaches ineffective. This necessitates the implementation of innovative, data-driven management. The use of big data analysis, artificial intelligence and predictive analytics allows creating new models that provide in-depth analysis of educational processes, forecasting results and optimizing resources. Such approaches increase the adaptability and flexibility of educational systems, minimize risks and ensure rapid response to crisis situations. In addition, they contribute to the transparency of decision-making, efficient use of resources and long-term development of educational institutions even in periods of turbulence. Thus, innovative, data-driven models are a key tool for modernizing and increasing the competitiveness of educational management.*

**Keywords:** *innovative educational management, data-driven methods, instability and crisis.*

### **Introduction.**

Modern world development takes place in conditions of constant uncertainty, economic turbulence and crisis phenomena [1-3], which significantly complicate the processes of management and administration. Classical management models often show their limitations, as they are unable to provide the necessary level of efficiency, analytical depth and strategic flexibility [4-6]. This necessitates the need for new approaches based on innovation, digitalization [7] and the use of large data sets. Innovative transformational management and administration based on data opens up new opportunities for effective response to crisis challenges [8-10]. It is not only about adapting to changes, but also about creating completely new management models that are formed on the basis of modern information and analytical technologies [11], artificial intelligence [12] and predictive analytics [13]. The use of such intelligent approaches [14-16] allows organizations to minimize risks, timely adjust strategies, and build long-term competitiveness even in conditions of destabilization of the external environment.

### **The Main Part.**

The modern education system ALSO operates in conditions of high turbulence, economic and social instability, which significantly complicates the processes of strategic and tactical management of educational institutions. Traditional management models often do not provide the necessary adaptability, speed of response and analytical accuracy, which emphasizes the need to implement innovative data-oriented approaches.

Innovative approaches based on big data analysis integrate the capabilities of artificial intelligence, machine learning and modern analytical methods. They allow for comprehensive monitoring of educational processes, predict learning outcomes, optimize resources and make informed management decisions at both the strategic and tactical levels. Thanks to such methods, educational institutions are able to increase adaptability, respond quickly to changes in the external environment and maintain competitiveness in crisis and unstable periods.

We detail the main scientific and practical conclusions on this topic:

1. The role of data in transformational management of education. Data is a strategic resource of modern educational management. They allow for analytical assessment of student success, the effectiveness of educational programs, resource provision and staff performance. Integration of internal and external data sources provides a complete view of the state of educational processes and forecasting the consequences of management decisions.

2. Innovative approaches to adaptive management. Modern innovative methods of educational management include: analysis of large data sets to identify patterns and potential risks; forecasting educational results and academic achievements; optimizing the use of educational institution resources; formulating recommendations for strategic and tactical planning.

3. Tactical and strategic levels of management. At the strategic level, innovative approaches allow: developing long-term strategies for the development of educational institutions; increasing the competitiveness of educational institutions; effectively distributing material and human resources. And at the tactical level, they provide: prompt response to crisis phenomena and external changes; adjusting curricula and programs in accordance with the needs of students and the labor market; personalization of educational processes and increasing the efficiency of pedagogical activities.

4. Practical implementation. Innovative approaches are implemented through: the use of analytical platforms and decision support systems; digitalization of educational processes; forecasting needs for resources and management tools; increasing transparency and control over the implementation of educational programs.

5. Advantages and effects of application. The implementation of innovative, data-oriented management models ensures: increased adaptability and flexibility of educational systems; rapid response to crisis situations; minimization of management risks and increased accuracy of decision-making; creation of conditions for sustainable development and competitiveness of educational institutions.

### **Conclusions.**

The implementation of innovative approaches to transformational education management, based on data, provides an effective combination of strategic planning and tactical response to the challenges of turbulent times. The use of big data analytics and artificial intelligence methods allows you to predict risks, increase the accuracy of management decisions and optimize educational processes. Such approaches ensure

increased flexibility and adaptability of education systems, transparency of decision-making, efficient use of resources and the possibility of proactive development even in periods of instability. Innovative, data-oriented management models are a key tool for the modernization of educational management, forming a platform for strategic and tactical management in modern conditions of turbulence.

### **Discussion.**

As already substantiated above, the modern educational system operates in conditions of constant instability, turbulence and crisis changes, which significantly affects the effectiveness of management decisions and organizational processes in educational institutions. It is hybrid intelligent technologies, oriented on data, that integrate the capabilities of classical machine learning, artificial intelligence and big data analytics [17]. They provide a comprehensive analysis of educational processes, prediction of learning outcomes, optimization of resources and individualization of management decisions. The use of such technologies allows to form systems that are able to quickly adapt to external changes, effectively counteract crisis phenomena and increase the quality and competitiveness of educational institutions.

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