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Traditional machine learning for adaptive management of education in crisis contexts

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Abstract. *Modern management systems operate in an environment of constant instability and crisis phenomena, where traditional approaches often lose their effectiveness. To ensure flexibility and strategic adaptability, intelligent technologies are needed that can process large amounts of data and make informed management decisions. The integration of classical machine learning into educational management is an effective tool in conditions of instability and crisis situations. This creates opportunities for comprehensive analysis, strategic planning and implementation of innovative solutions that increase the competitiveness of educational organizations. In general, the use of classical machine learning in adaptive education management ensures effective information processing, transparency of results, prompt response to changes and improvement of educational processes. Thus, machine learning becomes a key means of increasing the stability and competitiveness of educational institutions in conditions of constant transformations.*
Keywords: *innovative management, educational management, classical machine learning, crisis.*

Introduction. Modern socio-economic systems function under the conditions of constant uncertainty [1, 2], instability [3, 4] and crisis processes. Global economic fluctuations, political confrontations, environmental challenges and technological breakthroughs form an environment where traditional management approaches lose their effectiveness [5-7]. In other words, in conditions of modern instability and crisis phenomena [8, 9], organizations face the need for quick and effective decision -making that can minimize risks and ensure stable work [10]. That is, traditional management approaches are often not flexible enough to work in a fast-changing environment, which necessitates the use of intellectual (KNOWLEDGE-BASED AND DATA DRIVEN) technology [11] capable of adaptation to new circumstances.

To ensure stability, flexibility and strategic adaptability, appropriate innovative tools (information systems [12]) are needed, which are able to deeply analyze data and form rational management decisions.

Machine training, as one of the leading tools of artificial intelligence, makes it possible to process large amounts of data [13], to identify hidden patterns and to predict the development of events [14]. Traditional machine learning algorithms [15], including linear and logistics regression, decision trees, nearest neighbors and naive Bayesian classifier, are characterized by high understanding of the results and proven efficiency when working with structured data.

The introduction of classical methods of machine learning in crisis management allows you to create adaptive systems that not only predict the development of critical situations, but also optimize the response processes [16]. This helps to increase the resistance of organizations to external and internal threats, as well as ensures the rational use of resources in uncertainty.

Thus, the study and application of traditional methods of machine learning in the field of adaptive management is a relevant and practical task aimed at improving the effectiveness of management decisions in crisis.

The Main Part. The modern education system operates in conditions of constant instability and rapid changes caused by global economic, technological, social and political factors. The rapid introduction of new technologies, digitizing educational processes, changing the requirements for graduates and unpredictable external influences creates serious problems for educational organizations. In such circumstances, traditional management approaches are often not flexible, slow and ineffective for prompt reaction to the dynamics of events.

Classical machine learning, as a component of artificial intelligence, provides tools for analyzing large amounts of data, identifying hidden models, forecasting events and optimizing management decisions. The main methods differ in linear and logistics regression, solutions, the method of nearest neighbors, naive Bayes classifier and cluster analysis methods. These algorithms are characterized by high transparency, reliability and applicable data, which makes them particularly valuable for education management.

The use of classic machine learning algorithms in education management allows you to create adaptive and transformational management models that can not only predict and

prevent crisis, but also maintain strategic development of educational institutions. Adaptive systems provide a rapid reaction to changes in the environment, optimize the distribution of resources, increase the efficiency of processes and quality of acceptable decisions. The management of transformations based on analytics and forecasting allows educational institutions not only to adapt, but also to actively transform internal processes, to introduce innovations and meet modern standards of quality of education.

Thus, the integration of classical methods of machine learning into education management becomes a key factor in increasing stability, flexibility and ability to transform training institutions in conditions of instability and turbulence. This approach opens up opportunities for systematic analysis, strategic planning and practical implementation of innovative solutions that can increase the competitiveness of the educational environment.

Conclusions. The use of classical machine learning in adaptive and transformational management of modern education demonstrates a number of significant advantages:

First, it allows you to effectively process large arrays of educational data, identify hidden patterns and predict the development of crisis and unstable situations, ensuring timely management decisions.

Secondly, classic algorithms provide high transparency and interpretation of results, which is extremely important in the face of uncertainty, when the leaders of educational organizations should understand the logic of recommendations and make reasonable decisions.

Third, the use of such methods contributes to the creation of flexible and adaptive management systems that can quickly respond to changes in the external environment, turn internal educational processes and improve the quality of training services provided. They support strategic planning, resource optimization and implementation of innovative practices, increased stability and competitiveness of educational organizations.

Thus, the integration of classical machine learning into education management is an effective tool for ensuring adaptability and transformation ability, reducing risks and improving the quality of the learning process. Further research and practical implementation of such methods open up wide opportunities for intellectualization of management processes and sustainable development of the educational system in the conditions of turbulence and instability.

Discussion. As stated above, the contemporary election system function in the pursuit of high instability and turbulence, the pronounced by the vast technological name non-media factors. Tradental control methods are frequently inflamed by hybstilic and adaptive for effective reagent on such dinamic speech. In this context, the personality of the hybrid technologies of classical machine learning, which is collected by the pre -emptive algorithms for the presentation of the prediction and economic of the managing, which is used [17]. In such an image, the concept of hybrid technological classical machine learning into education management is opened and turbulence.

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Safety of electric and hybrid cars

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Abstract. *The article reviews international experience, as well as the Ukrainian context, in ensuring the safety of these vehicles. It is noted that the development of electric transport is one of the key areas of the global decarbonization strategy. However, the introduction of electric and hybrid cars is accompanied by new challenges in the field of safety. The issue concerns both technical resources and regulatory regulation. It is noted that international practice proves the effectiveness of an integrated approach, which covers both technical standards and training of specialists.*
Keywords: *electric transport, electric and hybrid cars, technical standards.*

Безпека електричних та гібридних автомобілів

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