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Cutting-edge intelligent management of academic R&D in the contemporary era of volatility and challenges

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Abstract. Higher education and academic research face growing uncertainty and crises that expose the limits of traditional R&D governance. To address these challenges, advanced intelligent management integrates knowledge-based approaches with data-driven strategies, artificial intelligence, and big data analytics. Such hybrid models enhance adaptability, improve forecasting, optimize resources, and strengthen resilience, enabling institutions not only to withstand crises but also to seize opportunities for growth and innovation. Modernizing R&D governance is therefore essential for building sustainable and competitive academic ecosystems in times of instability.

Keywords: intelligent management, academic science, crisis, research and development.

Introduction.

The modern world is characterized by a high degree of uncertainty [1-4], rapid technological change, and frequent and diverse crises affecting all areas of human activity [5-7]. Global instability increases the need for new approaches to organizing research and development (R&D). Classic management and administration methods are losing their effectiveness in these conditions, as they are focused on stable and predictable scenarios [8-11].

Advanced intelligent management and administration of R&D is a comprehensive approach based on the use of knowledge-based and data-driven knowledge management technologies [12], artificial intelligence [13, 14], big data analysis and analytics, fuzzy modeling, and adaptive decision support systems. This approach enables the prediction of crises, identification of potential risks, rational allocation of resources, and increased project sustainability (revitalization of R&D projects). Moreover, intelligent methods create conditions for synergy between innovative technologies [15] and strategic planning, which allows not only to reduce the negative impact of crises but also to use them as an incentive to find new solutions, especially in the transition economies of developing countries [16].

Thus, the relevance of this topic lies in the need to transition to flexible, intellectually rich models of R&D management and administration that can ensure competitiveness, efficiency, and long-term development in the face of global instability.

The Main Part.

In the modern global environment, higher education systems encounter extraordinary difficulties driven by volatility, unpredictability, and recurring disruptions. Financial instability, geopolitical tensions, rapid technological change, and social transformations require universities and research institutions to redesign their administrative models to remain sustainable and competitive. Conventional methods of organizing and supervising research and development (R&D) initiatives have become inadequate under such complex and shifting conditions.

Advanced and progressive smart administration highlights the incorporation of intelligent tools, flexible strategies, and evidence-based decision-making into the governance of higher education R&D. This model merges cutting-edge technologies—such as artificial intelligence, predictive analytics, and digital platforms—with innovative approaches to coordination, ensuring adaptability, productivity, and long-term resilience. Rethinking governance mechanisms enables institutions not only to endure crises but also to convert instability into opportunities for advancement, collaboration, and discovery.

The relevance of this issue is emphasized by the pivotal role of higher education in constructing knowledge-driven societies and equipping communities for unpredictable futures. Effective oversight of academic R&D must therefore unite visionary planning, resilience, and creativity while promoting interdisciplinary cooperation and international networking.

Conclusions.

The oversight and administration of higher education R&D in today's unstable context must move beyond traditional approaches and adopt enhanced, forward-looking, and intelligent practices. Smart management systems provide the required flexibility to predict potential threats, reduce crisis impacts, and secure ongoing innovation. Through the integration of digital intelligence and adaptive governance models, universities and research centers can achieve not only stability but also leadership in global knowledge creation.

In essence, the modernization of higher education R&D governance is not just a reaction to instability—it represents a strategic necessity for constructing enduring institutions capable of advancing innovation, supporting social development, and ensuring sustainable progress. The deployment of advanced intelligent governance serves both as a safeguard against crises and as a driver of academic and scientific achievements in an age shaped by uncertainty.

Discussion.

In today's era of global uncertainty, universities and research institutions are increasingly faced with unpredictable circumstances and complex challenges. Economic instability, geopolitical tensions, rapid digital transformation and changing societal demands are putting significant pressure on the coordination of academic research projects. Conventional governance systems often lack the flexibility, vision and adaptability needed to function effectively in such volatile conditions. In response, innovative HYBRID governance models have emerged as a crucial development direction. These models combine knowledge-driven approaches built on academic expertise, professional judgment and accumulated intellectual assets with data-driven strategies based on advanced analytics, artificial intelligence and big data processing. Their complementarity provides greater resilience and balance [17]: knowledge-based methods facilitate contextual depth and nuanced interpretation, while data-driven systems provide precision, scalability, and evidence-based decisions.

This dual paradigm is particularly important for the administration of research projects in higher education, where decision-making must harmonize tradition with progress, academic credibility with efficiency, and strategic foresight with immediate adaptability. A hybrid perspective enables institutions to not only weather periods of instability but also transform them into opportunities for institutional growth, international collaboration, and scholarly breakthroughs.

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Inclusive approach in psychological and pedagogical support for preschoolers with autism spectrum disorders

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Abstract. The article thoroughly explores the features of organizing psychological and pedagogical support for children with autism spectrum disorders (ASD) in preschool education settings. It is noted that effective support for this category of children requires a comprehensive and systematic approach that takes into account both the individual developmental characteristics of each child and the specifics of the educational environment. Emphasis is placed on the critical importance of early diagnosis of ASD, which enables the timely start of corrective and developmental work during the formation of basic skills, including verbal and nonverbal communication, emotional response, and sensory integration. The article examines the necessity of involving an interdisciplinary team of specialists – including a practical psychologist, speech therapist, special education teacher, educator, child assistant, and parents – in the creation of an individual development program and the adaptation of the child to the preschool group environment. Scientifically grounded modern approaches to building an inclusive environment are analyzed, emphasizing the importance of ensuring physical, emotional, and social safety, taking into account sensory sensitivity, the need for structured space, and event predictability. The article describes effective psychological and pedagogical strategies for working with children with ASD, such as the use of visual schedules, alternative communication techniques (e.g., PECS, sign language), positive reinforcement, behavioral interventions, play therapy, and art therapy. The importance of developing key competencies in educators – including tolerance, empathy, stress resilience, professional reflection, knowledge of autism spectrum specifics, and readiness for continuous professional development – is highlighted. Special attention is paid to the role of parents as active participants in the educational process and the importance of establishing constructive partnerships between families and educators. Such cooperation fosters trust, coordinated action, and a shared focus on the child's well-being. The article provides practical recommendations for adapting the content, forms, and methods of educational work, creating individualized development pathways, and organizing support mechanisms for the child's integration into society.

Keywords: autism, ASD, psychological and pedagogical support, inclusive education, preschool institution, individual development, pedagogical support, interdisciplinary team, adaptation, family partnership.