DOI 10.52260/2304-7216.2026.1(62).18
UDC 304.2-053.8/-053.9:796
SRSTI 06.71.55

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A PROJECT MANAGEMENT MODEL FOR ENGAGING MIDDLE-AGED AND ELDERLY POPULATIONS IN MASS SPORTS

This study examines the involvement of the middle-aged and elderly population in mass sports programs in the context of demographic changes and an increasing proportion of older age groups. Demographic trends in the Republic of Kazakhstan are analyzed, as well as the targets of state policy in the field of physical culture and sports development. The key factors influencing the participation of the population in mass sports are substantiated, including health status, financial conditions, availability of free time, and accessibility of sports infrastructure. It is determined that the existing approaches do not sufficiently take into account the need to integrate digital technologies and management mechanisms.

It is shown that achieving the engagement targets requires the use of integrated solutions based on the use of artificial intelligence and project management technologies. A project management model for engaging the middle-aged and elderly population has been developed, including blocks of input factors, digital analytics, program management, and infrastructure support. It is determined that the application of the proposed model provides increased process manageability and a focus on personalized approaches.

The results obtained can be used in the development and implementation of state and regional programs for the development of mass sports, as well as in the implementation of digital platforms for monitoring and increasing public engagement.

Keywords: *mass sports, middle-aged and elderly population, quality of life, public engagement, project management, artificial intelligence, sports infrastructure.*

Кілт сөздер: *бұқаралық спорт, орта және егде жас, өмір сапасы, халықты тарту, жобалық басқару, жасанды интеллект, спорттық инфрақұрылым.*

Ключевые слова: *массовый спорт, средний и пожилой возраст, качество жизни, вовлеченность населения, проектное управление, искусственный интеллект, спортивная инфраструктура.*

Introduction. In modern conditions of demographic transformations, accompanied by an increase in the proportion of the middle-aged and elderly population, the development of effective mechanisms for maintaining their social and physical activity is of particular relevance. Mass sports are considered as an important tool for promoting health, improving the quality of life and social integration, but the level of involvement of this category of the population remains insufficient. The current situation is caused by a combination of factors, including health conditions, financial constraints, lack of free time and insufficient accessibility of sports infrastructure [1,2]. The introduction of digital technologies and artificial intelligence tools to personalize physical activity programs and increase their effectiveness opens up additional opportunities to solve these problems.

The scientific interest in this issue is due to the need to move from fragmented measures to systematic management solutions that ensure the coordination of various factors of public involvement in mass sports. Despite the availability of strategic documents and individual studies, the integration of project management and digital analytics in this area has not been sufficiently studied, which determines the relevance of this study.

The aim of the study is to develop a project management model for the involvement of the middle-aged and elderly population in mass sports programs. To achieve this goal, the following tasks were addressed:

- the analysis of demographic trends and factors influencing the participation of the population in mass sports is carried out;
- the target guidelines of the state policy are investigated;
- the structure of the project management model is substantiated and its key elements are identified.

The study is based on data from the Bureau of National Statistics of the Republic of Kazakhstan, as well as the provisions of the Concept of Physical Culture and Sports Development for 2023-2029. The methodological basis was formed by methods of descriptive and comparative analysis, as well as a systematic approach that allowed us to consider the involvement of the population as a result of the interaction of socio-economic and managerial factors. The use of these methods ensured the validity of the conclusions and reproducibility of the results obtained.

Literature Review. The issues of mass sports development and increasing public engagement are considered in the context of government policy, socio-economic factors and individual behavior. In the Republic of Kazakhstan, strategic guidelines in this area are fixed at the level of the state program, which defines the target indicators of engagement and infrastructural development [1]. At the same time, research on the sports services market shows an imbalance between supply and demand, as well as insufficient accessibility of sports infrastructure for certain groups of the population [2].

Special attention in the scientific literature is paid to the role of mass sports in maintaining the health of the middle-aged and elderly population. It is noted that regular physical activity helps to prevent chronic diseases and improve the quality of life, but the level of engagement remains insufficient [3]. Foreign studies emphasize the importance of behavioral factors, including self-efficacy, which mediates participation in physical activity and influences the formation of sustainable health patterns [4]. Additionally, it has been established that taking into account the age characteristics and energy costs of various types of activity is an important condition for developing effective programs [5].

At the same time, the analysis of related research shows the need for an integrated approach that takes into account the spatial and infrastructural aspects of territorial development [6]. Despite a significant amount of work, the integration of digital technologies and project management into the mass sports development system remains poorly developed. This necessitates the development of models that ensure the coordination of quality-of-life factors, digital analytics and management decisions, which determines the relevance of this study.

Main part. In the context of demographic changes characterized by a gradual aging of the population, the importance of developing effective mechanisms for involving middle-aged and elderly citizens in socio-economic activity, including participation in mass sports programs, is increasing. The increase in the number of this age group creates an additional burden on the healthcare system, social security and the labor market, which requires the search for tools aimed at maintaining an active and healthy lifestyle.

Of particular importance in this context is the analysis of the dynamics of the middle-aged and elderly population, which makes it possible to assess the scale of the target audience and justify the need to develop management solutions in the field of physical activity. In this regard, Figure 1 shows the dynamics of the population by age groups 39-48 years, 49-57 years and 58 years and older for the period 2009-2025.

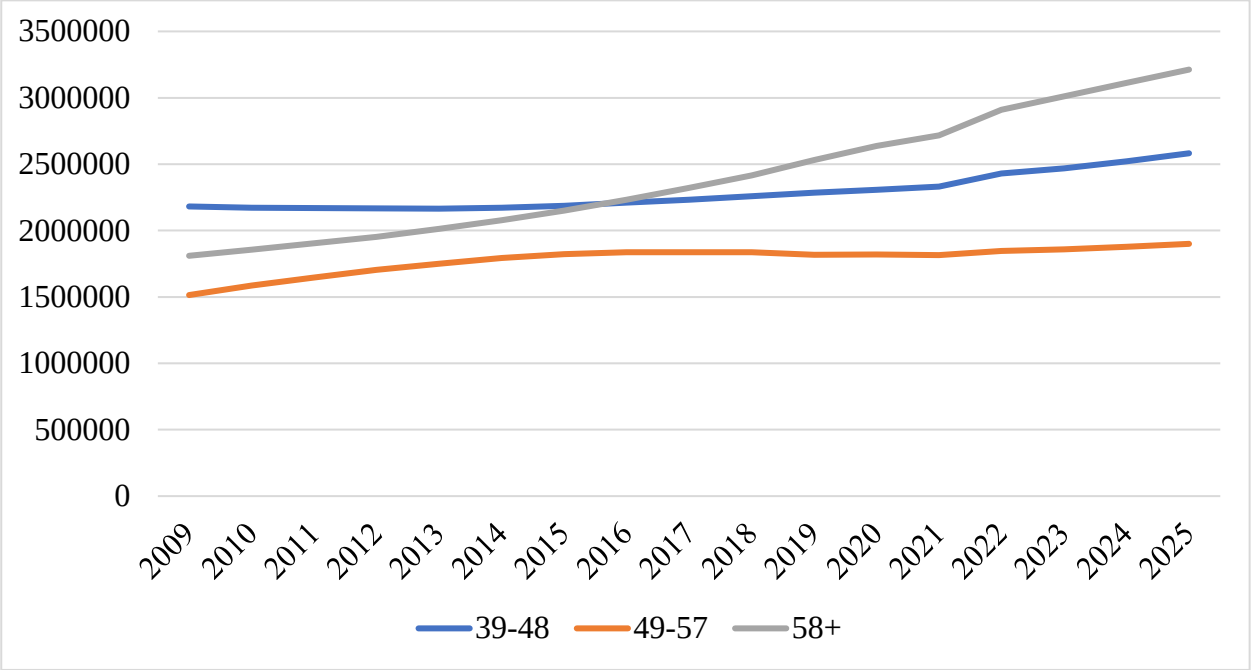

Figure – 1. **Dynamics of the middle-aged and elderly population in Kazakhstan, people**
**compiled by the authors based on the source [7].*

The analysis of the data presented in Figure 1 shows a steady trend of population growth in the older age groups. The most significant dynamics is observed among people aged 58 years and older. Thus, the number of 58+ people increased from 1,810,121 in 2009 to 3,212,474 in 2025, indicating an almost twofold increase. This trend reflects the aging of the population and the increase in life expectancy, which increases the urgency of developing programs aimed at maintaining physical activity in old age.

There is also a positive trend in the 39-48 age group, with the number increasing from 2,181,445 in 2009 to 2,582,102 in 2025. Despite the relatively moderate growth rates compared to the older group, this category forms a significant segment of the population that is at the stage of maximum labor and social activity, which makes it an important target group for involvement in mass sports.

The population aged 49-57 years is characterized by more stable dynamics with minor fluctuations - from 1,514,371 people in 2009 to 1,899,926 people in 2025. The moderate growth of this group indicates a gradual shift in the age structure of the population towards the older cohorts.

In general, the results obtained indicate the formation of a steady trend of increasing the proportion of the middle-aged and elderly population in the overall structure of the country's population. This necessitates the development of integrated management approaches aimed at increasing their involvement in physical activity and mass sports, which is considered one of the key factors in maintaining the quality of life and reducing the socio-economic burden on government systems.

Taking into account the identified demographic trends, it becomes necessary to analyze the targets of state policy in the field of mass sports development aimed at increasing the level of public engagement and expanding the accessibility of sports infrastructure. In this regard, the next stage of the study examines the key indicators fixed in the Concept of Development of Physical Culture and Sports of the Republic of Kazakhstan for 2023-2029, shown in Figure 2.

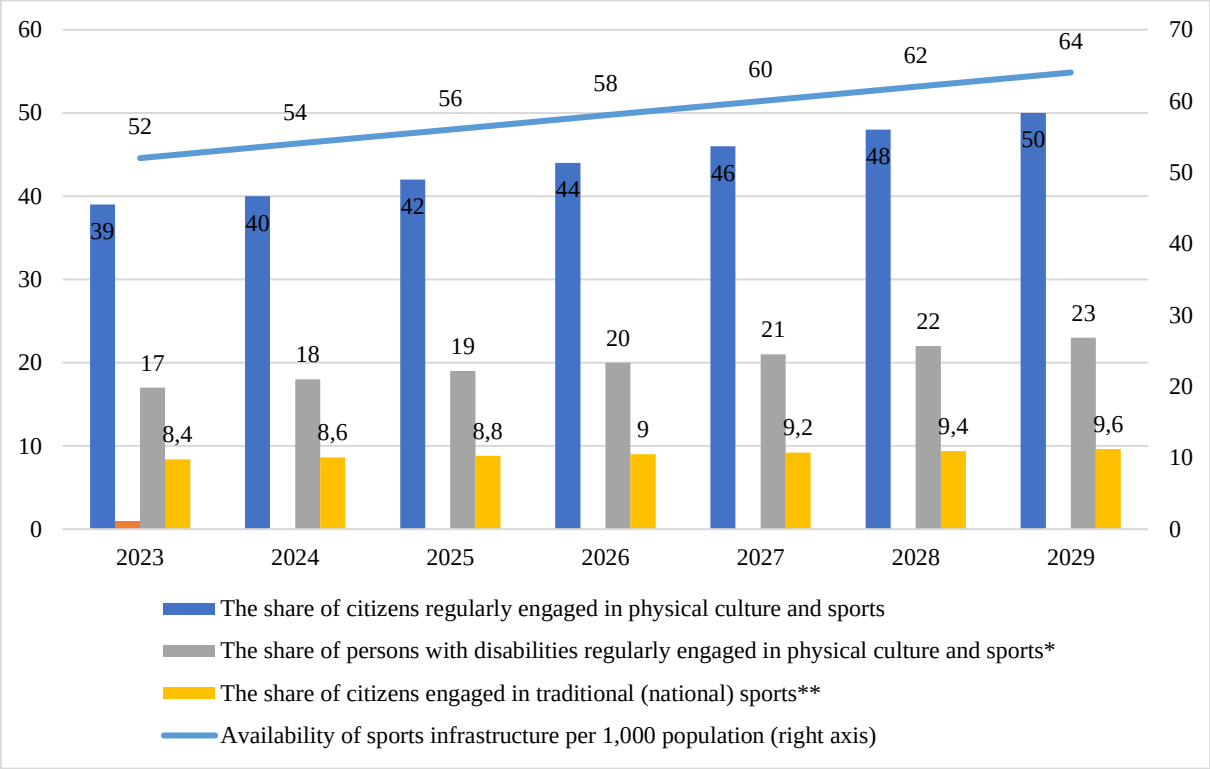

Figure – 2. **Dynamics of target indicators of population involvement in mass sports and development of sports infrastructure in Kazakhstan**

**compiled by the authors based on the source [1]*
**who have no medical contraindications to physical activity,*
*** of the total number of people engaged in physical education and sports*

An analysis of the data presented in Figure 2 shows that government policy is focused on a gradual increase in the proportion of citizens who systematically engage in physical education and sports, from 39% in 2023 to 50% by 2029. A similar positive trend is observed among people with disabilities, where the indicator increases from 17% to 23%, reflecting the strengthening of the inclusive orientation of sports policy. The share of citizens involved in national sports is also showing steady growth, increasing from 8.4% to 9.6%.

At the same time, the progressive development of sports infrastructure is observed: the availability of sports infrastructure is increasing from 52 to 64 facilities per 1,000 people, which creates the necessary infrastructure base for expanding mass sports participation. At the same time, the presented indicators are of a targeted nature and reflect strategic guidelines, the achievement of which requires the introduction of effective management mechanisms.

In the context of the growth of the middle-aged and elderly population and the need to achieve set targets, the development of an integrated management model is being actualized to increase the involvement of this category of the population in mass sports. In this regard, Figure 3 shows a model of project management involving the middle-aged and elderly population using modern digital solutions and artificial intelligence technologies.

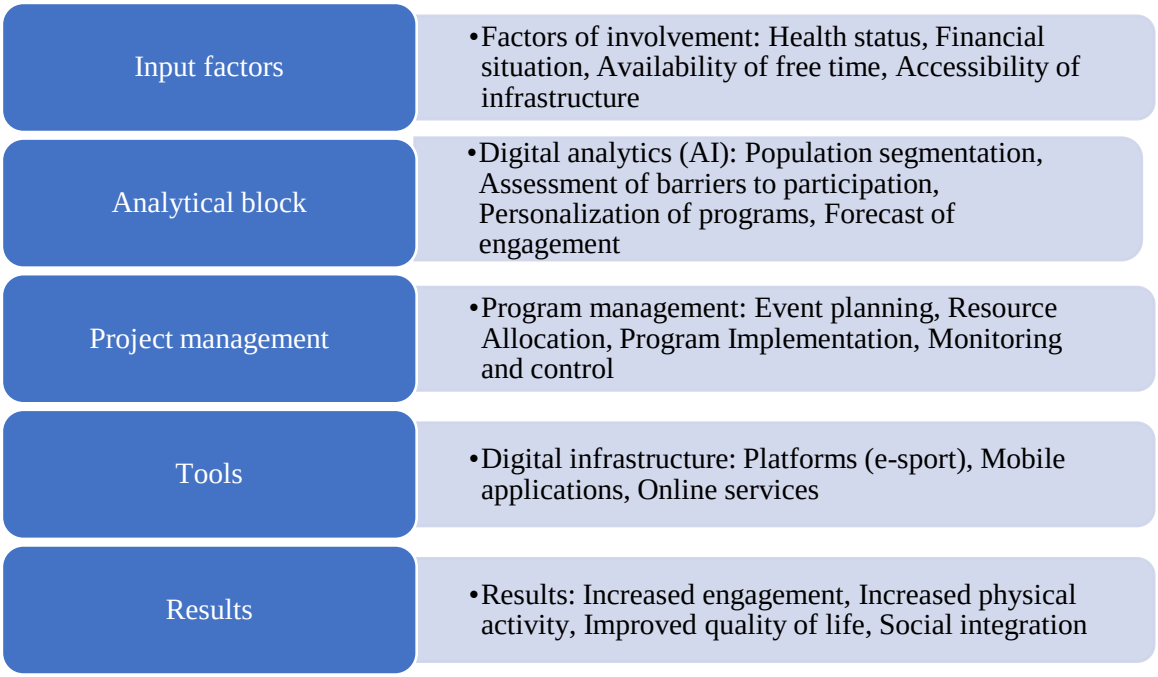

Figure – 3. **Project management model for the involvement of the middle-aged and elderly population in sports**
*****compiled by the authors*

The model presented in Figure 3 is complex and reflects the interrelation of key factors, digital tools and management mechanisms aimed at increasing public engagement in mass sports. The model is based on a set of input factors that determine the level of participation of the population in physical activity, which include health status, financial situation, availability of free time and accessibility of sports infrastructure. These factors form the initial conditions and at the same time act as constraints or drivers of engagement.

The central element of the model is an analytical block based on the use of artificial intelligence technologies. The functional purpose of the block is to segment target populations, identify barriers to participation, and create personalized physical activity programs. Additionally, the level of engagement is predicted, which allows for consideration of the behavioral and socio-economic characteristics of different age cohorts.

The results of digital analytics are integrated into the project management unit, which ensures the implementation of mass sports programs. Within the framework of this block, event planning, resource allocation, organization and implementation of programs, as well as monitoring and control of achieved results are carried out. The use of the project approach makes it possible to increase the manageability of processes and ensure the achievement of set targets. The supporting role in the model is performed by the digital infrastructure block, which includes specialized platforms, mobile applications, and online services. These tools ensure the availability of sports services, simplify the interaction of program participants and create conditions for continuous monitoring of physical activity.

The result of the functioning of the model is an increase in the involvement of the middle-aged and elderly population in mass sports, an increase in physical activity, an improvement in the quality of life and increased social integration. Thus, the proposed model forms the basis for the transition from declarative targets to their practical implementation based on modern digital and management solutions.

Conclusion. As a result of the conducted research, the need for a systematic approach to the involvement of the middle-aged and elderly population in mass sports, taking into account demographic changes and social constraints, is substantiated. The developed project management model using artificial intelligence technologies makes it possible to integrate quality of life factors, digital analytics and management mechanisms into a single decision-making system. The scientific novelty lies in the formation of an integrated model that ensures the transition from strategic guidelines to tools for their implementation. The practical significance lies in the possibility of using the model by public authorities and local executive bodies in the development and implementation of mass sports development programs, as well as in the

introduction of digital platforms for monitoring and personalization of physical activity. The prospects for further research are related to the empirical testing of the model and the assessment of its socio-economic effectiveness.

The research was funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN BR28713049 "Improving the quality of life of the middle-aged and elderly population through the development of mass sports using artificial intelligence technologies").

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ОРТА ЖӘНЕ ЕГДЕ ЖАСТАҒЫ ТҰРҒЫНДАРДЫ СПОРТҚА ТАРТУДЫ ЖОБАЛЫҚ БАСҚАРУ МОДЕЛІ

Аңдатпа

Мақалада демографиялық өзгерістер мен егде жастағы топтардың үлесінің өсуі жағдайында орта және егде жастағы тұрғындарды бұқаралық спорт бағдарламаларына тарту мәселелері қарастырылған. Қазақстан Республикасындағы демографиялық үрдістер, сондай-ақ дене шынықтыру мен спортты дамыту саласындағы мемлекеттік саясаттың нысаналы бағдарлары талданған. Халықтың бұқаралық спортқа қатысуына әсер ететін негізгі факторлар, оның ішінде денсаулық жағдайы, қаржылық жағдайы, бос уақыттың болуы және спорттық инфрақұрылымның қолжетімділігі негізделген. Қолданыстағы тәсілдер цифрлық технологиялар мен басқару тетіктерін біріктіру қажеттілігін жеткілікті түрде ескермейтіні анықталды.

Қатысудың мақсатты көрсеткіштеріне қол жеткізу жасанды интеллект және жобалық басқару технологияларын пайдалануға негізделген кешенді шешімдерді қолдануды талап ететіні көрсетілген. Кіріс факторлары, цифрлық талдау, бағдарламаларды басқару және инфрақұрылымдық қолдау блоктарын қамтитын орта және егде жастағы тұрғындарды тартуды жобалық басқару моделі әзірленді. Ұсынылған модельді қолдану процестердің басқарылуын және жекелендірілген тәсілдерге бағдарлануды қамтамасыз ететіні анықталды.

Алынған нәтижелер бұқаралық спортты дамытудың мемлекеттік және өңірлік бағдарламаларын әзірлеу және іске асыру кезінде, сондай-ақ халықтың тартылуын мониторингілеу және арттыру үшін цифрлық платформаларды енгізу кезінде пайдаланылуы мүмкін.

Айткалиева А.Н., Куангалиева Т.К., Кожамуратов Н.К., Кусмолдаева Ж.Н.

МОДЕЛЬ ПРОЕКТНОГО УПРАВЛЕНИЯ ВОВЛЕЧЕНИЕМ НАСЕЛЕНИЯ СРЕДНЕГО И ПОЖИЛОГО ВОЗРАСТА В СПОРТ

Аннотация

В статье рассмотрены вопросы вовлечения населения среднего и пожилого возраста в программы массового спорта в условиях демографических изменений и роста доли старших возрастных групп. Проанализированы демографические тенденции в Республике Казахстан, а также целевые ориентиры государственной политики в сфере развития физической культуры и спорта. Обоснованы ключевые факторы, влияющие на участие населения в массовом спорте, включая состояние здоровья, финансовое положение, наличие свободного времени и доступность спортивной инфраструктуры. Определено, что существующие подходы недостаточно учитывают необходимость интеграции цифровых технологий и управленческих механизмов.

Показано, что достижение целевых показателей вовлеченности требует применения комплексных решений, основанных на использовании технологий искусственного интеллекта и проектного управления. Разработана модель проектного управления вовлечением населения среднего и пожилого возраста, включающая блоки входных факторов, цифровой аналитики, управления программами и инфраструктурной поддержки. Определено, что применение предложенной модели обеспечивает повышение управляемости процессов и ориентацию на персонализированные подходы.

Полученные результаты могут быть использованы при разработке и реализации государственных и региональных программ развития массового спорта, а также при внедрении цифровых платформ для мониторинга и повышения вовлеченности населения.