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Management Strategies for Applying Artificial Intelligence and Emerging Technologies in Sports Development for Veterans and Individuals with Disabilities

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ABSTRACT

Background: This study aimed to identify and validate management strategies for applying artificial intelligence (AI) and emerging technologies in sports development for veterans and individuals with disabilities.

Methods: An applied mixed-methods design was used, engaging experts selected through purposive sampling. The Delphi technique was conducted in three rounds to identify, refine, and reach consensus on strategies. Qualitative data from semi-structured interviews were coded and analyzed, while quantitative data were examined using descriptive statistics. Credibility was ensured through participant verification, iterative review, and an audit trail. Reliability was calculated at 81% based on inter-rater agreement and process auditing.

Results: The study resulted in 65 validated strategies organized into nine key domains: strategic planning and macro-policy-making, designing technological infrastructure, training and human resource development, data analytics and intelligent decision-making, collaboration and networking, economic development and resource management, continuous monitoring and evaluation, enhancing accessibility and social equity, and innovation and future foresight. Findings indicate that effective implementation of AI and emerging technologies requires a comprehensive and strategic management approach. Critical elements include clear strategic planning, robust technological infrastructure, skilled human resources, and data-driven decision-making. Proper management of these components can improve participation, performance, and quality of life for veterans and individuals with disabilities, opening new opportunities for advancement.

Conclusions: This study not only enriches the current literature but also provides a practical framework for policymakers and sports managers to promote sustainable and inclusive development through AI and emerging technologies

KEYWORDS : Para-sport, new technologies, Performance Assessment, Sports Data Analytics, Personalized Training.

Introduction

Text Disability refers to limitations individuals face due to impairments or an inability to fulfill roles based on age, gender, or social and environmental factors [1]. According to the United Nations, people with disabilities often experience lower participation in society, reduced employment, and financial hardship, which may lead to depression, isolation, and decreased self-efficacy [2, 3]. WHO estimates that over 15% of the global population around one billion people live with some form of disability [4], though some studies suggest even higher prevalence [5]. In Iran, the eight-year war resulted in a large population of veterans and individuals with war-related disabilities, who continue to face challenges in social integration and participation [6]. Social perceptions of disability have evolved from exclusion to inclusion, promoting equal opportunities for growth and development [7]. The role of sports in improving the lives of individuals with disabilities is well documented. Participation enhances physical health, social inclusion, and psychological well-being [8, 9, 10]. It also supports physical and emotional rehabilitation for veterans and individuals with disabilities [11]. As interest in disability sports grows, so does the need for technological tools to enhance training, monitoring, and performance. Artificial intelligence (AI) and emerging technologies offer promising solutions in this context.

Thematic Literature Review

Studies have highlighted the psychological and social challenges faced by individuals with disabilities, including low self-esteem and social isolation [2, 3, 5]. In contrast, engagement in sports enhances self-efficacy, life satisfaction, and resilience [8, 9, 10]. For instance, Dirmanchi and Khanjani [5]. reported higher self-efficacy among disabled athletes compared to non-athletes.

Technological innovations such as wearable sensors and AI offer non-invasive and efficient ways to monitor training and performance [12, 14]. AI applications like machine learning, computer vision, and big data can analyze movements, provide real-time feedback, and optimize training for athletes with disabilities [13, 14].

While technologies are widely used in rehabilitation and healthcare globally, access remains limited, especially in regions like Iran. Alqahtani et al. [15] Emphasized the global need for assistive mobility technologies, noting that only 10% of users currently have access. Wang et al. [16] Highlighted the potential of IoT and deep learning to transform communication strategies in disability sports.

Emerging environments like virtual reality and the metaverse have been explored for physical education and rehabilitation. Kang and Kang [17] stressed the importance of aligning VR sports with users' disability types, while Kim [18] noted the metaverse's role in enhancing engagement and performance. Rosa [19] argued that AI can combat physical inactivity among individuals with disabilities through personalized programs and assistive monitoring tools.

Nosrati Heshi et al. [20] conducted a research synthesis on AI's role in physical education, identifying its contributions to learners, educators, and institutional reform. Takizadeh et al. [21] empirically validated the use of inertial sensors and AI to assess motor skills like kicking, highlighting both accuracy and efficiency in educational and clinical settings.

Despite global advances in AI and technology in medicine, rehabilitation, and sports, research on their impact on sports for veterans and individuals with disabilities in Iran is limited. This gap hinders athletic development for this population. This study aims to address the gap by analyzing the role of AI and emerging technologies in disability sports in Iran and providing actionable management strategies to improve performance and quality of life. The study contributes theoretically by expanding literature on AI in disability sports and practically by offering guidelines for integrating technology into sports programs, informing national policies, and enhancing opportunities for veterans and individuals with disabilities. The central research question is: What management strategies can support the adoption of AI and emerging technologies in sports development for this population in Iran?

Material and Methods

Text text. This study is applied in purpose, adheres to an interpretive paradigm, employs a mixed-methods design (semi-exploratory qualitative and descriptive-analytical quantitative), and is future-oriented. Participants included experts in technology and sports for veterans and individuals with disabilities, such as AI and technology specialists, sports management professors familiar with disability sports, veteran and disabled athletes, and administrators and professionals in disability sports. Selection criteria included relevant educational backgrounds, practical experience, and employment in the field of disability and veteran sports. A purposive sampling method was utilized.

To identify management strategies for integrating AI and emerging technologies into sports development for veterans and individuals with disabilities, a comprehensive literature review on AI and emerging technologies in disability sports was conducted. This review provided foundational insights and established the starting point for the research (20). Subsequently, the Delphi technique was employed to refine and validate the identified factors. The Delphi method serves both exploratory and confirmatory purposes (21), and this study incorporated both aspects across three rounds.

Participants and Sampling Strategy

The participants in this study were purposefully selected based on criteria aligned with the research objectives, focusing on the intersection of technology and sports for veterans and individuals with disabilities. Inclusion criteria emphasized participants' specialized knowledge, practical experience, and current or past involvement in relevant organizations or initiatives supporting disability sports. Specifically, the research included experts in technology and artificial intelligence with experience in applying innovative solutions in sports and rehabilitation contexts; sports management professors with expertise in adaptive and disability sports; professional athletes with disabilities and veterans who have engaged in sports development programs; and managers or practitioners working in organizations and federations dedicated to the development and management of sports for veterans and individuals with disabilities. A purposive sampling strategy was employed to ensure the selection of information-rich participants capable of providing deep, contextually relevant insights. The study also sought maximum variation in terms of gender, type

of disability, area of technological expertise, and professional role (academic, administrative, or practitioner) to capture a wide range of perspectives and experiences. Participants were recruited through professional networks, academic and organizational referrals, and formal invitations to relevant federations and institutions. All participants were provided with detailed information about the study objectives and procedures and gave informed consent to participate.

First Delphi Round

The first Delphi round involved semi-structured interviews (22) with 15 participants from the disability and veteran sports sector. Interviews began with the broad question: *“What management strategies do you propose for adopting AI and emerging technologies in sports development for veterans and individuals with disabilities?”* Follow-up questions were tailored based on participants’ responses. This round functioned as an ideation strategy, aiming to uncover all topics relevant to the study (23). Participants were encouraged to freely brainstorm ideas related to the subject (24). All relevant responses were collected, as subsequent rounds relied on this initial phase. After coding the interviews, similar ideas were synthesized, grouped, and redundant or tangential themes were eliminated (25).

Validity and reliability in qualitative research hinge on iterative interaction between data and analysis. The face and content validity of the interview-derived questionnaire was reviewed and confirmed by five sports management professors and three administrators from the Iranian Federation of Disability Sports. Interview credibility was ensured through participant verification of coded data and iterative review. To enhance confirmability, detailed documentation of data collection, analysis, and theme development was shared with research collaborators for validation (26). Inter-rater reliability was calculated using Cohen’s kappa, yielding 76% agreement, exceeding the 70% threshold, thus confirming coding reliability. The finalized factors were converted into a semi-structured questionnaire for the second Delphi round (27).

Second Delphi Round

In the second round, the semi-structured questionnaire using a 5-point Likert scale was distributed to the Delphi panel to assess the importance of identified factors. Participants were invited to propose additional factors, if necessary, though none were added.

Third Delphi Round

The Delphi method requires at least two rounds of consultation to allow participants to revise their views based on group feedback, fostering consensus (27). In the third round, the 65 factors, alongside statistical summaries (median, standard deviation, interquartile range), and agreement levels (measured via Likert scale) were shared with the panel. This enabled participants to compare their responses with group trends (28). No new factors emerged, and all 65 achieved $\geq 70\%$ consensus, meeting the Delphi termination criteria (29). Thus, the Delphi process concluded after the third round.

Results

In the first Delphi round, 15 semi-structured interviews with experts in technology and sports for veterans and individuals with disabilities identified 72 management strategies for applying artificial intelligence (AI) and emerging technologies in the development of disability sports. These strategies, along with their references and agreement percentages from the second and third Delphi rounds, are presented in Table 1 across nine key domains.

Table 1. Management Strategies for Applying Artificial Intelligence and Emerging Technologies in Sports Development for Veterans and Individuals with Disabilities

the field	Management Strategies for Applying Artificial Intelligence and Emerging Technologies in Sports Development for Veterans and Individuals with Disabilities	Delphi Round 1 Interview	Delphi Round 2 Agreement	Delphi Round 3 Agreement
Strategic Planning and Macro-Policy	Designing an AI-driven integrated system for managing human and financial resources in disability sports.	P1, P4, P11	4.55	4.91
	Establishing supportive policies by governments to facilitate the entry of emerging technologies into disability sports.	P5, P7, P14	3.64	4.64
	Launching specialized R&D centers to evaluate the impact of emerging technologies on disability sports.	P10, P15	4.27	4.18
	Aligning sustainable development goals with disability-specific sports policies.	P2, P3, P10	4.45	3.82
	Implementing supportive policies for startups active in disability sports technologies.	P10, P13	4.18	4.09
	Developing crisis management frameworks to address technological challenges in disability sports.	P2, P3, P5	3.73	4.64
	Building smart sports clubs with specialized facilities for athletes with disabilities.	P3, P4, P7	4.27	4.18
Technological Infrastructure Design	Installing smart sensors in sports facilities to monitor the performance of athletes with disabilities.	P6, P8, P15	3.55	4.09
	Creating a national database to store and analyze sports performance data of veterans and individuals with disabilities.	P2, P13, P15	3.13	×
	Designing sports club management software with specialized features for veterans and individuals with disabilities.	P3, P4, P5, P7, P8, P10	4.64	4.91
	Using augmented reality (AR) to enhance training and education for athletes with disabilities.	P5, P10, P12, P15	4.09	4.64
	Developing smart sports equipment, such as advanced wheelchairs for specialized sports.	P8, P11, P12	4.18	4.18
	Designing mobile apps to streamline access to training programs for athletes with disabilities.	P3, P15	3.91	3.82
	Implementing AI for managing transportation systems for athletes with disabilities during competitions.	P7, P8	4.00	4.91
	Expanding online platforms to deliver sports services to veterans and individuals with disabilities in remote areas.	P1, P4, P11	4.09	4.64
	Equipping stadiums with accessibility technologies, such as real-time sign language translation.	P1, P3, P5, P6, P7, P8, P15	3.64	4.18
	Developing online training courses for coaches in disability sports using emerging technologies.	P1, P2	4.27	3.82
Human Resource	Designing AI-powered educational programs and apps to enhance coaches' technical skills.	P6, P15	3.82	4.09
	Using VR and AR simulators to train coaches and referees in disability sports.	P7, P11	4.18	4.64
	Organizing specialized workshops to familiarize managers and coaches with emerging technologies.	P7, P10	4.64	4.18
	Creating game-based learning systems to engage more athletes with disabilities.	P9, P11, P12	4.27	4.09

Education and Training	Applying AI to assess and improve coaches' skills in working with athletes with disabilities.	P5, P9,	4.27	3.82
	Utilizing machine learning platforms to analyze educational feedback.	P4, P8	3.73	3.64
	Building data analysis systems to monitor the progress of athletes with disabilities.	P6, P7, P13	3.73	4.45
Data Analysis and Intelligent Decision Making	Analyzing sports competition data to identify strengths and weaknesses.	P5, P7, P15	4.09	3.82
	Using sentiment analysis algorithms to evaluate the psychological state of athletes with disabilities.	P3, P15	4.09	3.91
	Developing injury prediction models to reduce risks.	P2, P9	3.45	4.91
	Analyzing environmental data to optimize training conditions.	P3, P7, P14	3.82	4.64
	Adopting blockchain technology to manage athlete data and prevent tampering.	P5, P7, P14	3.27	×
	Analyzing global trends in disability sports to align domestic strategies.	P9, P13	3.12	×
	Using data mining to identify athletic talent among veterans and individuals with disabilities.	P1, P4, P5	4.55	4.91
	Developing digital platforms to connect athletes, coaches, and managers.	P5, P6, P7	4.00	4.64
	Establishing smart networks for sharing sports data internationally.	P6, P8, P15	3.09	×
Partnership and Networking	Using AI to identify and attract new sponsors.	P5, P7, P10	3.64	4.91
	Launching digital campaigns to raise public awareness about disability sports.	P5, P7, P14	4.27	4.64
	Creating interactive platforms for family involvement in disability sports processes.	P10, P15	4.36	4.18
	Leveraging social media to promote disability sports and gain public support.	P2, P3, P8	4.27	3.82
	Building online communities for athletes with disabilities to exchange experiences.	P5, P7, P15	3.82	4.09
	Collaborating with universities on joint research in technology and disability sports.	P10, P13	4.18	4.64
	Creating online marketplaces to sell specialized sports equipment for individuals with disabilities.	P2, P5, P9	3.91	4.18
	Using AI to optimize financial resource management in disability sports clubs.	P1, P3, P7	4.36	4.09
Economic Development and Resource Management	Employing crowdfunding platforms to finance sports projects.	P6, P10, P11	3.73	3.82
	Developing smart payment systems for cost management.	P2, P13, P15	4.55	3.64
	Establishing smart support funds for disability sports development.	P2, P4, P6, P7, P9, P10	3.64	4.45
	Analyzing market data to identify investment opportunities in sports equipment.	P5, P10, P13, P15	4.27	3.82
	Offering incentive schemes to attract investors to this field.	P10, P11, P13	4.45	3.91
	Designing automated systems to evaluate the performance of athletes with disabilities.	P3, P15	4.18	4.36
	Using AI to assess the quality of sports services.	P2, P8	3.13	×
Continuous Monitoring and Evaluation	Implementing online monitoring tools to track the progress of sports programs.	P1, P4, P5	4.27	4.91
	Applying data analysis algorithms to evaluate the social impacts of disability sports.	P1, P3, P5, P6, P7, P8, P10	4.55	4.64
	Creating alert systems to detect infrastructure flaws in disability sports facilities.	P1, P13	4.73	4.18

	Using IoT technologies to monitor sports equipment.	P8, P14	4.64	4.91
	Analyzing athlete feedback to improve managerial processes.	P7, P11	4.09	4.64
	Applying machine learning systems to predict future needs in disability sports.	P9, P10	4.18	4.18
	Generating smart reports for decision-making bodies.	P6, P11, P12	3.91	3.82
	Developing digital platforms for simplified athlete registration.	P5	4.00	4.09
	Designing technologies to reduce physical barriers for athletes with disabilities.	P1, P7	4.09	4.64
	Creating smart apps to streamline event notifications for disability sports.	P5, P6, P13	3.64	4.18
	Using AI to identify regions requiring disability sports development.	P1, P7, P15	4.27	4.09
	Designing smart transportation systems for ease	P3, P11	3.82	3.82
	Designing an AI-driven integrated system for managing human and financial resources in disability sports.	P2, P4	4.18	4.45
Promoting Access and Social Justice	Establishing supportive policies by governments to facilitate the entry of emerging technologies into disability sports.	P9 P15	3.24	×
	Launching specialized R&D centers to evaluate the impact of emerging technologies on disability sports.	P6, P7, P8, P10	4.27	3.91
	Aligning sustainable development goals with disability-specific sports policies.	P1, P14	4.27	3.91
	Implementing supportive policies for startups active in disability sports technologies.	P3, P5, P7	3.73	4.18
	Developing crisis management frameworks to address technological challenges in disability sports.	P7, P11, P14	3.73	3.82
	Building smart sports clubs with specialized facilities for athletes with disabilities.	P5, P9, P15	4.09	4.09
	Installing smart sensors in sports facilities to monitor the performance of athletes with disabilities.	P5, P7, P14	4.09	4.09
	Creating a national database to store and analyze sports performance data of veterans and individuals with disabilities.	P1, P7, P14	3.45	4.09
	Designing sports club management software with specialized features for veterans and individuals with disabilities.	P5, P7, P14	3.82	4.09
	Using augmented reality (AR) to enhance training and education for athletes with disabilities.	P10, P13	3.27	×
Innovation and Foresight	Developing smart sports equipment, such as advanced wheelchairs for specialized sports.	P2, P3, P5	3.82	3.91

Discussion

Study's findings clearly demonstrate that the effective integration of artificial intelligence (AI) and emerging technologies into sports development for veterans and individuals with disabilities hinges upon a comprehensive and multifaceted managerial approach. This approach encompasses nine critical areas, each vital for successful implementation and sustainable growth in this specialized field. Macro level planning and strategic policies form the foundation for sustainable development in disability sports. The study highlights that unclear guidelines, institutional misalignment, and lack of comprehensive support programs are key barriers to adopting emerging technologies. These findings align with prior research (Kiani et al., 2013; Wang & Shu, 2024), emphasizing the need for effective policies, supportive frameworks, and sustainable resource allocation. Developing legal and regulatory frameworks tailored to smart technologies can facilitate their integration into disability sports. A national roadmap is essential, incorporating supportive policies, national standards, and tax incentives for companies in this sector. Private sector involvement is critical, as profit-driven entities can enhance productivity (30). Without private support, advanced technologies risk being unaffordable for disabled athletes. Collaborative models, such as

installment plans and equipment financing, can reduce costs (31, 32, 33, 34). For example, Nike's specially designed shoes for individuals with disabilities improve comfort and accessibility.

A major challenge is the lack of adequate technological infrastructure. The study identifies insufficient access to smart equipment, weak digital platforms, and technology-driven tools as critical obstacles. Research by Alqahtani et al. (2021) underscores the role of IoT, AI, and virtual reality (VR) in enhancing performance and rehabilitation. Investment in smart clubs, national databases, and advanced equipment is vital to improving access. Technologies like smart sensors, augmented reality, and adaptive sports gear can optimize training efficiency. Japan's *Tokyo 2020 Paralympic Training Center* exemplifies success, offering motion sensors and AI-driven performance analysis for athletes. Maximizing technology's potential in disability sports necessitates training coaches and officials through tech-enabled education. The study reveals that inadequate training programs and a lack of specialized courses in emerging technologies are significant challenges.

Big data and AI-driven performance analysis are transformative in modern sports science. Findings indicate that data analytics systems can optimize training, prevent injuries, and personalize programs, corroborating Zheng's (2016) research. Developing smart analytics platforms, predictive models, and machine learning algorithms can enhance efficiency. U.S. Paralympic teams use software like *Dartfish*, which employs machine learning to analyze movements and recommend improvements.

Effective networking among athletes, coaches, managers, and technologists is pivotal. The study identifies poor communication channels and fragmented stakeholder engagement as barriers. Mohammadipour et al. (2020) highlight the need for cross-sector collaboration. Digital platforms, virtual communities, and networking initiatives can foster knowledge-sharing. The U.S. platform *Move United* connects disabled athletes with coaches, specialists, and sponsors, boosting national engagement.

Financial constraints, high costs of smart equipment, and unstable economic models hinder progress. Alqahtani et al. (2021) note that financial limitations restrict access to advanced technologies. Solutions include establishing support funds, sustainable business models, and public-private investments. Australia's *Adaptive Sports Fund* has increased disabled athletes' budgets by 30% through private sector partnerships.

Digital monitoring systems and AI-driven feedback significantly enhance training quality. Rum et al. (2021) emphasize the role of smart surveillance in disability sports. Machine learning algorithms, biomechanical tools, and remote sensing technologies can refine training. The International Paralympic Committee's *Performance Analysis Systems* provide data-driven feedback to optimize programs.

Socioeconomic and geographic disparities limit access to sports facilities. Cassidy and Albanesi (2023) and Ercis (2018) stress the need for equitable policies. Affordable technologies, smart apps, and accessible transportation can boost participation. The EU's *Accessible Stadiums Initiative* implements smart pathways, interactive displays, and advanced audio systems in stadiums. Investing in emerging technologies like bionics, nanotechnology, and advanced AI can revolutionize disability sports. Kang and Kang (2019) highlight VR and AI's role in rehabilitation and performance. MIT's collaboration with tech firms on robotic exoskeletons exemplifies future-ready innovations.

Conclusion

This study uniquely contributes to the field by providing a comprehensive, integrated managerial framework explicitly designed for the successful adoption of AI and emerging technologies in disability sports. While the individual components of effective management are recognized, our research's novelty lies in systematically identifying and categorizing these nine critical dimensions specifically within the nascent context of AI integration for veterans and individuals with disabilities in sport. We moved beyond generalities to pinpoint the interconnectedness of strategic planning, infrastructure, human capital, data-driven insights, collaboration, economic models, continuous evaluation, equity, and future innovation as indispensable for unlocking the transformative potential of these technologies. This novel integrated framework offers actionable guidance that was previously undefined, providing policymakers and stakeholders with a tailored roadmap to overcome existing barriers such as unclear guidelines and inadequate infrastructure and proactively foster an environment where AI can truly revolutionize disabled athletes' participation and performance. Our findings underscore that merely having advanced technologies is insufficient; their effective, equitable, and sustainable integration demands a strategic, data-centric, and collaborative managerial approach, which this study meticulously outlines. This groundbreaking perspective can significantly enhance productivity, reduce systemic barriers, and, crucially, unlock unprecedented pathways for disabled athletes to achieve their full potential, thereby advancing their quality of life and broader societal inclusion.

Ethical Considerations:

Compliance with ethical guidelines

The study adhered to all relevant ethical guidelines throughout the research process.

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Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this manuscript

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استراتژی‌های مدیریتی برای به کارگیری هوش مصنوعی و فناوری‌های نوظهور در توسعه ورزش برای جانبازان و افراد دارای معلولیت

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چکیده

هدف: این مطالعه با هدف شناسایی و اعتبارسنجی راهبردهای مدیریتی به کارگیری هوش مصنوعی (AI) و فناوری‌های نوظهور در توسعه ورزش برای جانبازان و افراد دارای معلولیت انجام شد.

روش شناسی: پژوهش حاضر از نوع کاربردی و با رویکرد ترکیبی (کیفی-کمی) طراحی شده است. نمونه‌ها به صورت هدفمند و با توجه به تخصص در حوزه‌های مرتبط انتخاب شدند. برای گردآوری و تحلیل داده‌ها، تکنیک دلفی در سه مرحله به کار رفت تا راهبردهای پیشنهادی شناسایی، پالایش و نهایی شوند. داده‌های کیفی از طریق کدگذاری مصاحبه‌های نیمه ساختاریافته تحلیل گردید و داده‌های کمی نیز با استفاده از آمار توصیفی مورد بررسی قرار گرفت. به منظور اطمینان از روایی داده‌ها، از بازبینی مشارکت‌کنندگان، بازبینی‌های مکرر و ثبت مراحل تحقیق استفاده شد. همچنین پایایی داده‌ها از طریق توافق بین ارزیابان و ممیزی فرایند، با ضریب ۸۱٪ تأیید شد.

نتایج: در نهایت، ۶۵ راهبرد مدیریتی در ۹ حوزه کلیدی شناسایی و اعتبارسنجی شد که شامل: برنامه‌ریزی راهبردی و سیاست‌گذاری کلان، طراحی زیرساخت‌های فناورانه، آموزش و توسعه منابع انسانی، تحلیل داده و تصمیم‌گیری هوشمند، همکاری و شبکه‌سازی، توسعه اقتصادی و مدیریت منابع، پایش و ارزیابی مستمر، ارتقای دسترسی و عدالت اجتماعی، و نوآوری و آینده‌پژوهی بودند. یافته‌ها نشان می‌دهد اجرای مؤثر هوش مصنوعی و فناوری‌های نوظهور در این حوزه نیازمند رویکردی جامع و راهبردی است. عناصر کلیدی شامل برنامه‌ریزی دقیق، زیرساخت فناورانه قوی، منابع انسانی توانمند و تصمیم‌گیری مبتنی بر داده است.

نتیجه‌گیری: مدیریت صحیح این عوامل می‌تواند مشارکت، عملکرد و کیفیت زندگی جانبازان و افراد دارای معلولیت را بهبود بخشد و زمینه‌ساز فرصت‌های جدید در توسعه ورزش برای این گروه باشد. این مطالعه علاوه بر غنی‌سازی ادبیات علمی، چارچوبی کاربردی برای سیاست‌گذاران و مدیران ورزشی به منظور توسعه پایدار و فراگیر از طریق فناوری‌های نوین ارائه می‌دهد.

واژه‌های کلیدی: ورزش‌های جانبازان و معلولان، فناوری‌های نوین، ارزیابی عملکرد، تحلیل داده‌های ورزشی، تمرین شخصی‌سازی شده