



Sports Operations Management: A Review of Elements and Challenges

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ABSTRACT

This review paper aims to provide a comprehensive understanding of sports operations management. It explores various critical components, including the definition and scope of sports operations management, stakeholder involvement, performance management and measurement, project management, event management, and environmental concerns in the field. The objective is to synthesize current knowledge, identify gaps, and suggest directions for future research. The review employs a thematic analysis approach, systematically examining a range of academic literature and scholarly articles. It delves into different aspects of sports operations management, drawing insights from various studies and reports to provide a holistic understanding of the field. The review finds that sports operations management is a multifaceted field that extends beyond traditional sports management. Key findings include the identification of diverse stakeholders in sports operations, the varied challenges in performance and project management in sports, the intricacies of managing large-scale sports events, and the growing importance of environmental sustainability in sports operations. The findings of this review have significant implications for practitioners and policymakers in sports management. Understanding the diverse components of sports operations management is crucial for effectively organizing and executing sports events, enhancing athlete performance, and ensuring environmental sustainability. The review also highlights the need for integrated strategies that consider all aspects of sports operations. This review contributes to the existing literature by providing a comprehensive synthesis of various elements of sports operations management. It offers a unique perspective by integrating different components into a singular narrative, thereby adding value to the academic and practical understanding of sports operations management.

Keywords: Sports operations management, Event management, Environmental sustainability, Performance measurement stakeholder engagement

INTRODUCTION

Sports operations management, an essential facet of the sports industry, involves the systematic coordination of various elements essential for organizing and running sports events efficiently [1]. This field's significance is evident in its impact on the overall success and sustainability of sports events and organizations globally. The importance of sports operations management cannot be overstated, especially considering the global sports industry's economic magnitude. Major sports events like the Super Bowl, FIFA World Cup, and the Olympic Games are not only cultural phenomena but also significant economic drivers. For instance, the Super Bowl alone generates hundreds of millions of dollars in revenue each year [2]. The FIFA World Cup and the Olympic Games similarly contribute significantly to the economy, with the Rio 2016 Olympic Games generating billions of dollars in revenue [3]. In light of these facts, there is an increasing body of research on sports operations management, covering various aspects such as stakeholder management [4], performance management [5], project management [6], event

management [7], and environmental concerns [8]. This growing research interest highlights the complexity and multifaceted nature of sports operations management. Despite the significance and extensive scope of sports operations management, there appears to be a lack of comprehensive review papers that collate and synthesize existing research in this area. This gap underscores the need for a review paper that provides an integrated understanding of the various components of sports operations management.

The purpose of this research paper is to fill this gap by providing a comprehensive overview of sports operations management. It aims to synthesize existing literature across different sub-fields, offering insights into the current state of knowledge and identifying areas for future research. This paper seeks to contribute to the academic and practical understanding of sports operations management, providing a foundation for further research and practice in this dynamic field.

SPORTS OPERATIONS MANAGEMENT

Sports operations management refers to the application of business principles and practices to the organization and administration of sports events, facilities, and activities. It encompasses a range of activities, including event planning, facility management, and logistics. For instance, Schnitzer [6] explore project management methods in sports events, highlighting the operational aspects of organizing such events. Similarly, Rundh and Gottfridsson [7] discuss the delivery of sports events from a network perspective, emphasizing the operational complexities involved. The term "Sports Operations Management" has evolved from traditional sports management, which initially focused more on aspects related to athletic performance and team management. Over the years, a shift towards a more holistic view that includes operational and business aspects of sports has occurred. Lee and Scott [9] and Downs and Seifried [10] provide context for modern sports facilities, hinting at the evolution of sports infrastructure management as part of this broader operational focus. Over the years, Sports Operations Management has expanded to include a diverse range of activities beyond just managing sports teams and athletes. It now integrates principles from general operations management, such as supply chain management, logistics, and strategic planning. Lee, Oh, and Lim [8] illustrate how environmental factors impact sports events, showing the multifaceted nature of modern sports operations. MacIntosh, Couture, and Spence [11] discuss the challenges in delivering international sport and development programs, indicating the global expansion and complexity of sports operations. Today, Sports Operations Management includes areas like environmental management [2], volunteer management [12], and the management of sports facilities [13]. The scope has broadened to encompass sustainable practices, stakeholder engagement, and the use of technology, as seen in Terason, Yang, and Kulwanich's [14] exploration of virtual meetings in sports organizations during the COVID-19 pandemic. While sports management generally focuses on the broader management aspects of sports organizations, including marketing, finance, and administration, Sports Operations Management is more narrowly focused on the operational aspects. It deals specifically with the planning, organizing, and managing of sports events and facilities. This distinction is evident in the work of Arnold, Fletcher, and Anderson [5], where the focus is on leadership and performance, contrasting with the operational focus seen in the works of Kauppi, Moxham, and Bamford [15], who call for research specifically in sport operations management. Thus, Sports Operations Management has emerged as a distinct field, addressing the operational complexities and challenges of modern sports. Its evolution from traditional sports management reflects the growing recognition of the importance of effective operational strategies in the successful delivery of sports events and programs.

STAKEHOLDERS IN SPORTS OPERATIONS MANAGEMENT

The field of Sports Operations Management involves a complex network of stakeholders, each playing a critical role in the successful delivery and management of sports activities.

Athletes and Teams

Athletes and Teams are central to sports operations. Their performance, training needs, and welfare dictate many operational decisions. Arnold, Fletcher, and Anderson [5] emphasize that the operational strategies should cater to enhancing athletes' performance, which includes ensuring access to high-quality facilities and equipment. Athletes and teams interact regularly with coaches, event organizers, and facility managers, and their rights to adequate training facilities and safe environments are paramount. Their duties include adhering to organizational rules and schedules.

Coaches and Training Staff

Coaches and Training Staff are integral to sports operations, tasked with preparing athletes for peak performance. Their involvement in operational decisions is highlighted by Arnold, Fletcher, and Anderson [5], who note the importance of effective coaching in athletes' performance. Coaches and training staff have the right to access necessary resources and are responsible for providing effective training in line with organizational goals.

Sports Event Organizers

Sports Event Organizers, as Schnitzer [6] note, are crucial for the seamless execution of sports events. They oversee the entire event from planning to execution, coordinating with various stakeholders including athletes, sponsors, and media. Their role is not only operational but also strategic, ensuring events meet the standards and expectations of all stakeholders involved.

Facility Managers

Facility Managers play a vital role in ensuring sports venues are safe and functional. Iversen [13] discusses the importance of efficient facility management, highlighting the responsibilities of these managers in maintaining the venues to meet the needs of athletes and spectators. They work closely with event organizers to prepare venues for various sports events.

Sponsors and Media

The involvement of sponsors and media is predominantly financial and promotional. Kauppi, Moxham, and Bamford [15] discuss how sponsors and media entities contribute to sports operations through investments and publicity. Their collaboration with teams, athletes, and event organizers is essential for marketing and promotional activities.

Fans and Spectators

Fans and Spectators are at the heart of sports operations as the primary consumers. Lee, Oh, and Lim [8] illustrate the importance of understanding fan preferences and behaviors in sports operations management. They have the right to a safe and enjoyable experience and are expected to adhere to venue regulations and behavioral standards.

Regulatory Bodies and Associations

These bodies ensure adherence to legal, ethical, and professional standards. MacIntosh, Couture, and Spence [11] highlight the role of these bodies in overseeing sports operations, providing guidelines, and ensuring fair play. They hold the right to sanction stakeholders for non-compliance and have the duty to enforce regulations.

Other notable stakeholders include health professionals, whose role in athlete welfare is crucial, as indicated by Daddi [2]. Security staff and local communities also play significant roles, the former in ensuring the safety of events and the latter as recipients of the economic and social benefits of sports events.

The stakeholder landscape in Sports Operations Management is diverse and intricate. Each group contributes uniquely, and their interactions, interests, and roles underscore the complexity of managing sports operations effectively.

PERFORMANCE MANAGEMENT AND MEASUREMENT IN SPORTS OPERATIONS MANAGEMENT

Performance measurement in sports operations management refers to the process of quantifying the effectiveness and efficiency of action. It involves assessing various aspects of sports operations, including athlete performance, event organization, and facility management. Arnold, Fletcher, and Anderson [5] emphasize the importance of assessing leadership and management factors that influence elite sports performance, underlining the multifaceted nature of performance measurement in sports. Different sports require unique performance metrics due to their distinct nature and operational demands. For instance, in team sports like soccer and basketball, performance measurement might focus on team dynamics, player statistics, and game outcomes [8]. In contrast, individual sports such as athletics or swimming may measure performance based on individual athlete times, distances, or technique efficiency. Iversen [16] notes the importance of measuring sports facility utilization, which is critical in sports where facilities play a key role, such as gymnastics or swimming.

Performance Management in Team Sports

In team sports like soccer and basketball, performance management focuses on both individual player metrics and team dynamics. For soccer, Lee, Oh, and Lim [8] discuss the impact of environmental factors on attendance and performance, suggesting the importance of optimizing game schedules and player comfort for peak performance. In basketball, aspects like shooting accuracy, player stamina, and teamwork are crucial.

Performance improvement in these sports can be achieved through targeted training programs, strategic game planning, and utilizing analytics for player and team performance assessment.

Performance Management in Individual Sports

In individual sports such as athletics and swimming, the emphasis is on personal bests, technique refinement, and individual physical conditioning. Iversen [16] highlights the role of facilities in performance, indicating that for sports like swimming, access to high-quality training facilities significantly impacts athlete performance. In athletics, performance management may involve biomechanical analysis and personalized training schedules, focusing on improving specific aspects like speed, endurance or strength.

Performance Management in Outdoor Sports

Outdoor sports such as cycling and mountain climbing present unique challenges for performance management due to their interaction with environmental elements. Perić, Vitezić, and Đurkin Badurina [17] emphasize the need for adapting to various outdoor conditions, suggesting that performance improvement in these sports involves rigorous environmental adaptation training and mental resilience building.

Performance Management in Precision Sports

In precision sports like golf and archery, performance management is centered around skill accuracy and consistency. Here, techniques like video analysis for movement correction and mental training for focus and concentration are pivotal. The use of technology for performance analysis in these sports can significantly enhance precision and consistency.

Methods to Improve Performance

- **Structured Training and Preparation:** As Arnold, Hewton, and Fletcher [5] describe, structured training camps, like those for the London 2012 Olympic Games, are essential for systematic skill development and performance enhancement.
- **Sustainable Practices:** Daddi [2] indicate that environmentally sustainable practices in sports operations can indirectly improve performance by creating healthier and more sustainable sporting environments.
- **Stakeholder Management:** Kasale, Winand, and Morrow [4] suggest that effective stakeholder management, including athletes, coaches, and support staff, is vital for cohesive team

performance, especially in team sports.

- **Modernization of Facilities:** Downs and Seifried [10] argue that modernizing sports facilities with advanced technologies and infrastructure can lead to significant improvements in performance, particularly in sports where facility quality directly impacts performance.
- **Logistics and Event Organization:** Herold, Breitbarth, Schulenkorf, and Kummer [18] demonstrate the importance of efficient logistics and event organization in enhancing the overall sporting experience, thereby indirectly boosting athlete performance.

Impact of Performance Measurement and Management on Sports Operations

Performance measurement and management play a pivotal role in enhancing the effectiveness of sports operations. By providing tangible data and insights, it helps in making informed decisions, optimizing resource allocation, and improving overall operational efficiency. For instance, Herold, Breitbarth, Schulenkorf, and Kummer [18] highlight the role of logistics in sports, showing how effective management can improve performance in sports events.

Furthermore, Downs and Seifried [10] discuss modernization in sports arenas, illustrating how advancements in facilities contribute to improved operational performance. Performance measurement and management also aid in identifying areas of improvement, setting benchmarks, and establishing best practices. This aspect is particularly important in the context of large-scale events like the Olympic Games, as discussed by Groschl [3], where the complexity of operations necessitates rigorous performance management strategies. Performance management and measurement are crucial components of sports operations management. They provide a framework for assessing and improving various aspects of sports operations, from athlete performance to event organization and facility management. The effectiveness of sports operations heavily relies on the ability to measure, analyze, and manage performance across different sports and operational areas.

PROJECT MANAGEMENT IN SPORTS OPERATIONS MANAGEMENT

Project management in sports operations management refers to the planning, organizing, directing, and controlling of resources for a temporary endeavor with a clear goal, such as a sports event or facility development. Arnold, Fletcher, and Anderson [5] discuss this in the context of leadership and management in elite sports, where project management is crucial for achieving peak performance and operational success.

Types of Projects

In sports, projects can vary widely, encompassing events like tournaments, construction of facilities, and developmental programs for athletes. Arnold, Hewton, and Fletcher [5] describe the organization of the London 2012 Olympic Games preparation camp as a project that required meticulous planning and execution. Similarly, Daddi [2] discuss the environmental management of sporting events, which itself can be considered a project focusing on sustainability.

Sports operations management encompasses a diverse array of projects, each tailored to specific objectives and needs within the sports domain.

- **Event Organization Projects:** These projects involve organizing sports events, such as tournaments or leagues. For instance, Groschl [3] describes the extensive project management required for organizing the Rio 2016 Olympic and Paralympic Games, which involved coordinating various sports events, ceremonies, and logistics.
- **Facility Construction and Renovation Projects:** Projects like the modernization of sports arenas, discussed by Downs and Seifried [10], involve large-scale construction or renovation, requiring detailed planning and execution.
- **Athlete Development Programs:** These projects focus on developing athlete skills and performance. Arnold, Hewton, and Fletcher [5] provide an example with the preparation camp for the London 2012 Olympic Games, which was a project aimed at maximizing the

performance of athletes.

- **Environmental Sustainability Projects:** Initiatives focusing on sustainable practices in sports, such as Daddi [2]'s exploration of environmental management in European football, represent a growing field in sports project management.

Implementation of Projects

The implementation of these projects involves specific methodologies and strategies: **Event Organization:** This typically follows a phased approach, starting from conceptualization to planning, execution, and post-event analysis. The planning of the Olympic Games, as discussed by Groschl [3], is an example of a multi-phased project implementation. **Facility Projects:** These often use traditional project management methodologies, with a focus on timelines, budgeting, and resource allocation [19]. The modernization projects, like those mentioned by Downs and Seifried [10], require meticulous planning and execution to meet strict deadlines and budget constraints. **Development Programs:** For athlete development projects, agile methodologies might be preferred to allow flexibility and adaptability, as indicated in Arnold, Hewton, and Fletcher [5]'s discussion of the Olympic preparation camp.

Challenges in Project Management

Project management in sports is fraught with challenges, often unique to the nature of the sport and the project: **Budget Constraints and Financial Management:** Managing budgets effectively is a perennial challenge, especially for large-scale projects like stadium construction or international sports events [10]. **Stakeholder Management:** As noted in various studies, managing expectations and communications with a diverse range of stakeholders, including athletes, sponsors, governments, and fans, is complex. Groschl [3] highlights this in the context of the Olympics. **Environmental and External Factors:** Projects like outdoor sports events are highly susceptible to environmental challenges. Lee, Oh, and Lim [8]'s study on the impact of environmental barriers on sports attendance underscores this challenge.

Technological Integration: Incorporating technology in projects, such as virtual meetings in sports management discussed by Terason, Yang, and Kulwanich [14], presents both opportunities and challenges in ensuring effective implementation and user engagement. **Volunteer Management:** In large events, managing volunteers is crucial. Wang [12] discusses the challenges in volunteer management and its impact on the overall success of sports events. Project management in sports operations management is an intricate and multifaceted aspect of the sports industry. It involves a variety of projects, each with its unique challenges and requirements. From organizing world-class sports events to building state-of-the-art facilities, effective project management is critical to the success and sustainability of sports operations. These projects require not only a deep understanding of sports and operational management but also a strong capability in handling the diverse challenges that arise during the project lifecycle.

EVENT MANAGEMENT IN SPORTS OPERATIONS MANAGEMENT

Event management within sports operations management refers to the process of designing, planning, coordinating, and executing sports events, ranging from local tournaments to international competitions. It involves managing logistics, facilities, stakeholders, and participants to ensure the successful delivery of the event. Arnold, Fletcher, and Anderson [5] emphasize the significance of leadership and management skills in effectively orchestrating sports events, highlighting the multifaceted nature of event management.

Types of Events

Sports events can vary widely in scale, scope, and nature:

- **International Multi-Sport Events:** The Olympic Games, as detailed by Groschl [3], represent a pinnacle of international sports events, involving multiple sports, countries, and a wide array of logistical challenges.

- **Professional League Events:** Events like the Super Bowl in American football or the UEFA Champions League final in European football are significant in their respective sports, drawing massive global audiences and necessitating intricate event planning and management.
- **Outdoor Sports Events:** These include events in sports like cycling, marathon, or mountain climbing. For instance, the Tour de France is a major cycling event requiring extensive route planning and coordination, as discussed in the context of outdoor sports events [17].
- **Indoor Sports Events:** Indoor sports events, such as NBA basketball games or indoor athletics competitions, demand effective management of indoor arenas and facilities [10].

Management of Sports Events

The management of sports events involves a comprehensive approach. Planning and coordination include budgeting, scheduling, and logistics management, exemplified by the planning process for the London 2012 Olympic Games preparation camp [5]. Effective sports event management also involves maintaining relationships with sponsors, teams, media, and local authorities, as critical stakeholders in the success of the event [4]. Ensuring the availability and readiness of sports facilities and infrastructure, along with the integration of technology for ticketing, audience engagement, and event broadcasting, is increasingly important in contemporary sports event management [14,18].

Challenges in Sports Event Management

Sports event management faces several significant challenges. Managing large-scale events like the Olympics involves coordinating numerous activities and stakeholders, often across different countries and cultures, adding to the scalability and complexity of the tasks [3]. Outdoor events are particularly susceptible to environmental factors, which can impact scheduling and logistics [8]. Additionally, ensuring the safety of participants, staff, and spectators, especially in large events with significant crowds, is paramount. Financial management, including balancing budgets and ensuring financial viability in the face of unforeseen costs or reduced revenues, remains a constant challenge in sports event management. Sports event management is a dynamic and complex field that demands a deep understanding of the specific sport, robust planning, coordination, and management skills. Successful sports event management not only enhances the experience for participants and spectators but also contributes to the broader success and reputation of the sport.

ENVIRONMENTAL CONCERNS IN SPORTS OPERATIONS MANAGEMENT

Environmental concerns in sports operations management encompass a range of issues, including the impact of sports facilities and events on the natural environment, the carbon footprint of sports activities, and the management of waste and resources. Daddi [2] emphasize the importance of environmental management in sports, particularly in the context of European professional football, highlighting issues such as energy consumption, waste generation, and water usage.

Certain sports are more prone to environmental concerns due to their nature and scale:

- **Motor Sports:** Sports like Formula 1 or NASCAR have significant environmental impacts due to fuel consumption and emissions.
- **Golf:** Golf courses often require extensive land use and water resources, contributing to habitat disruption and resource consumption.
- **Outdoor and Adventure Sports:** Activities like skiing and mountain biking can lead to soil erosion, habitat disruption, and pollution.
- **Large-scale Events:** Events like the Olympic Games or the FIFA World Cup involve massive construction projects, extensive travel by participants and spectators, and considerable resource use, as discussed by Groschl [3] in the context of the Rio 2016 Olympic Games.

The environmental impact of sports operations can be significant: The environmental impact of sports operations is a multifaceted issue that encompasses several critical concerns. Travel and energy use in sports operations significantly contribute to greenhouse gas emissions, a pressing issue for the industry [2]. Additionally, the resource-intensive nature of sports facilities and events can lead to considerable resource depletion, often exemplified by the high water and energy usage required for maintaining vast stadiums and arenas [10]. Waste generation is another significant environmental concern; large sports events generate considerable amounts of waste, presenting complex challenges for waste management [8]. Furthermore, the construction and expansion of sports facilities can sometimes lead to habitat destruction and biodiversity loss, raising concerns about the long-term environmental impact of sports infrastructure development [19]. There are several strategies to mitigate these environmental impacts: To mitigate these pressing environmental issues, the adoption of sustainable practices in event management and facility operations is critical. Utilizing renewable energy sources, implementing efficient waste management systems, and adopting water-saving technologies can significantly reduce the environmental footprint of sports operations [2]. Additionally, constructing and renovating facilities according to green building standards can help minimize environmental impacts, an approach that is increasingly becoming a priority in modern sports arena development [10]. Carbon offsetting initiatives offer a compensatory mechanism, particularly for events associated with significant travel requirements, thus contributing to broader efforts to combat climate change [3]. Engaging local communities and stakeholders in environmental management efforts not only enhances the sustainability of sports operations but also fosters a sense of shared responsibility and commitment to environmental stewardship [4]. Environmental concerns in sports operations management are increasingly recognized as critical issues that need to be addressed to ensure the sustainability of the sports industry. By implementing environmentally responsible practices, sports organizations can significantly reduce their ecological footprint and contribute to global sustainability efforts.

CONCLUSION

This review paper has comprehensively explored various facets of sports operations management, offering insights into its complexity and multifaceted nature. The key areas discussed include the essence and development of sports operations management, the diverse stakeholders involved, the nuances of performance management and measurement, the intricacies of project management, the dynamics of event management in sports, and the critical environmental concerns associated with sports operations. In the dynamic field of sports operations management, the application of business principles extends well beyond athlete management to include event planning, facility management, and logistical coordination. The role of various stakeholders—athletes, coaches, event organizers, facility managers, sponsors, fans, and regulatory bodies—is pivotal, each influencing sports operation in significant ways. Performance management and measurement are crucial, necessitating tailored evaluation methods and diverse practices to enhance performance across different sports. Projects within sports operations, such as event organization and facility development, demand meticulous planning and coordination while navigating complex challenges. Event management, particularly for major events like the Olympics, requires addressing logistical intricacies, financial planning, and stakeholder engagement on a grand scale. Moreover, environmental sustainability has emerged as a critical concern in sports operations, given its contribution to carbon emissions, resource depletion, and biodiversity loss, underscoring the importance of implementing sustainable practices to mitigate these impacts. This review underscores the need for an integrated approach in sports operations management, one that balances operational efficiency, stakeholder satisfaction, environmental sustainability, and performance excellence. The insights gained from this review can guide sports administrators and policymakers in refining their strategies, ensuring that sports operations are not only successful but also sustainable and responsive to environmental and societal needs.

There are several avenues for further research. Future studies could delve deeper into the impact of emerging technologies on sports operations, explore the long-term effects of sustainable practices in sports, and examine the changing landscape of sports operations in the post-

COVID-19 era. Additionally, research into the psychological and social aspects of sports operations, particularly in relation to stakeholder engagement and satisfaction, could yield valuable insights. In conclusion, the field of sports operations management is dynamic and continually evolving. As sports become increasingly global and interconnected, the challenges and opportunities in this field will necessitate innovative approaches, informed by comprehensive research and a deep understanding of the multifaceted nature of sports operations.

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