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Examining the Factors Influencing Revenue Generation in Tehran Municipality Sports Complexes

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ABSTRACT

Urban sports complexes require sustainable revenue generation to continue operations and deliver high-quality services. Under such conditions, identifying the factors that influence the income of these centers is highly important. The present study was conducted with the aim of examining the components affecting revenue generation in the sports complexes of Tehran Municipality. This study was carried out as a field research project using a correlational approach and structural equation modeling. The statistical population consisted of managers, employees, experts, and customers of Tehran Municipality sports complexes, from whom 384 individuals were selected through sampling. The data collection instrument was Rafiei's (2021) standardized revenue-generation questionnaire, consisting of 25 items across six components, whose validity and reliability were confirmed using Cronbach's alpha. After data collection, the data were analyzed first using descriptive indicators and subsequently through exploratory factor analysis and structural equation modeling to assess the relationships among variables. The findings indicated that six key factors—including customer orientation, competitor orientation, human resources, equipment, welfare facilities, and customer preference—significantly influence revenue generation in the sports complexes of Tehran Municipality. Each of these factors plays an important role in attracting and retaining customers, enhancing service quality, and creating a positive experience for visitors. Overall, it can be stated that revenue generation is not merely the result of increasing capacity or offering more services; rather, it is the product of smart management of service quality, attention to customer needs, and investment in human resources and facilities. Therefore, strengthening these factors can contribute to the financial sustainability of the complexes and provide a foundation for expanding urban sports services and improving community health.

Keywords: Revenue generation, sports complexes, customer orientation, competitive strategy

Introduction

The rapid evolution of the global sports industry over the past two decades has transformed sports organizations from traditional service providers into dynamic, innovation-driven enterprises operating within increasingly complex economic, technological, and social ecosystems. This shift has intensified scholarly interest in understanding the drivers of competitiveness, sustainability, and high-quality development in sports enterprises, particularly as organizations confront pressures related to digitalization, customer expectations, environmental responsibility, and entrepreneurial performance. The emergence of digital finance, sustainable entrepreneurship, business intelligence, marketing innovation, and technological transformation has generated new managerial imperatives

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that sports organizations must strategically navigate to achieve long-term growth and resilience (1-3). In this context, scholars consistently emphasize that contemporary sports enterprises no longer compete solely through athletic performance or facility-based services; rather, they must leverage data-driven decision-making, technological infrastructures, multi-channel marketing strategies, human capital development, and value co-creation processes to enhance both operational efficiency and stakeholder experiences (4-6).

A central component in the transformation of the sports industry is the shift toward digital financial systems and digital economic infrastructures, which have reshaped the strategic pathways for sports enterprise development. Digital finance contributes to enhanced innovation capability, improved access to capital, increased market participation, and the consolidation of competitive advantages, particularly in large-scale and technology-oriented sports firms (7, 8). Empirical evidence from Chinese listed sports companies demonstrates that the integration of digital finance significantly improves innovation output and organizational quality, enabling firms to diversify revenue streams and strengthen their overall strategic position in domestic and international markets (3). The importance of these mechanisms becomes even more pronounced as sports enterprises seek to align with global trends in data governance, financial transparency, and digital competitiveness.

In addition to digital financial tools, innovation-driven strategies continue to serve as essential foundations for sustainable value creation in sports businesses. Innovation is no longer limited to product development or sports equipment; it encompasses managerial innovation, social innovation, marketing innovation, and green innovation practices. Research suggests that innovation efficiency is strongly influenced by national-level policies and organizational support systems (9). Similarly, innovation in sport-related enterprises is closely tied to social innovation processes, including employee value co-creation and organizational citizenship behavior, which enhance overall service quality and customer satisfaction (10). These dynamics indicate that sports enterprises that adopt holistic innovation models achieve stronger organizational performance, deeper customer engagement, and higher sustainability levels over time.

Parallel to this evolution is the growing emphasis on sustainability-oriented performance, particularly within sports goods manufacturing sectors. Sustainable market orientation and sustainable entrepreneurship orientation have been shown to significantly enhance green radical product innovation, leading to long-term environmental and economic benefits for firms (11). Similarly, multi-level evidence from Chinese sports manufacturing companies illustrates that sports enterprises' green innovation capacity depends on both micro-level actions (e.g., employee involvement, training, and innovative work behaviors) and macro-level mechanisms (e.g., government policies, market regulations, and supply chain partnerships) (12). This dual-level perspective underscores the necessity for sports organizations to adopt environmentally responsible strategies that align with global sustainability objectives and consumer expectations for green products.

Moreover, entrepreneurship and business intelligence have emerged as critical competencies shaping the competitiveness of contemporary sports organizations. Entrepreneurship in the sports industry now extends beyond traditional event-based or club-based models; it includes digital entrepreneurship, online sports platforms, data-driven business models, and technology-enabled service ecosystems. Scholars argue that entrepreneurship within sports industries is increasingly characterized by innovation, risk-taking, opportunity recognition, and strategic partnerships (13). Research on online sports enterprises highlights that business intelligence capabilities—such as data analytics, market forecasting, and knowledge integration—are major predictors of strategic success, enabling enterprises to anticipate consumer behaviors, optimize service delivery, and enhance market positioning (2). These

insights suggest that the integration of entrepreneurial strategies and business intelligence tools can improve responsiveness, competitiveness, and organizational adaptability in a rapidly evolving digital marketplace.

Marketing strategies, particularly those specific to sports contexts, also play a significant role in shaping organizational outcomes. Sports marketing has undergone significant transformation due to globalization, media expansion, technological integration, and the rising popularity of digital platforms. Scholars in the field argue that contemporary sports marketing requires a comprehensive understanding of consumer behavior, branding, social media engagement, sponsorship structures, and value co-creation mechanisms (14). Evidence shows that marketing through sports—whether as a promotional tool or as the primary business activity—remains highly effective in capturing consumer attention, strengthening brand loyalty, and expanding market reach (15). These strategies are particularly important for municipal and community-based sports complexes that rely heavily on customer engagement, service differentiation, and competitive positioning to ensure revenue stability and operational continuity.

Another important consideration in the management of sports organizations is the human factor, particularly in relation to workforce development, job demands, and organizational climate. The increasing workload and pressure on educational and administrative staff in sports and physical education environments have been associated with higher levels of job burnout, decreased job satisfaction, and reduced performance outcomes (6). These findings highlight the importance of designing human resource strategies that promote well-being, enhance professional competencies, and support employee engagement in sports organizations. Additionally, research indicates that the effective use of educational media and instructional technologies in learning management systems can enhance staff capabilities and organizational efficiency, suggesting that digital training infrastructures may play a significant role in employee development within sports settings (4).

The psychological and behavioral dimensions of sports participation also offer important insights into the needs and motivations of customers using sports facilities. Studies exploring gaming addiction, academic vitality, and mental health demonstrate that behavioral patterns in leisure and recreation contexts—such as sports participation or gaming—are influenced by a combination of motivational, psychological, and environmental factors (16). These findings support the argument that sports organizations must design environments and services that not only enhance the physical experience but also support psychological well-being and social engagement, thereby improving customer loyalty and long-term participation.

Risk management has additionally emerged as a strategic priority for sports businesses, especially fitness centers and sports clubs that must navigate financial, operational, environmental, and safety-related risks. Evidence suggests that effective risk management practices directly enhance sustainable marketing orientation, enabling sports organizations to operate responsibly, comply with safety standards, and deliver consistent value to customers (17). This connection indicates that risk management is not merely an operational necessity but a strategic tool that supports branding, customer trust, and organizational resilience.

Finally, interdisciplinary research highlights that physiological and health-related insights contribute indirectly to sports management by informing the design of sports programs, training activities, and service offerings. For example, studies on the effects of physical activity, pharmacological interventions, and environmental stressors on hormonal and physiological outcomes provide evidence that structured physical engagement—such as swimming and other aerobic activities—plays a critical role in physical and mental health (5). These insights help sports

enterprises develop scientifically grounded programs that promote wellness, prevent injury, and attract health-conscious customers.

Taken together, existing research across digital finance, entrepreneurship, innovation, sustainability, marketing, human resource management, customer behavior, and physiological sciences illustrates that contemporary sports enterprises operate at the intersection of multiple dynamic influences. These enterprises must strategically integrate digital transformation, sustainability initiatives, workforce development, marketing innovation, and customer-centered service design to achieve competitive performance and long-term growth. Despite these advancements, there remains a critical need to investigate how these interconnected factors shape the operational, financial, and strategic outcomes of sports organizations, particularly within urban contexts where municipal sports complexes play a significant role in community well-being and public service delivery. Accordingly, the aim of this study is to identify and analyze the key factors influencing performance and revenue generation in municipal sports complexes.

Methods and Materials

The present study employs a correlational research design with a structural equation modeling (SEM) approach and is categorized as applied research in terms of purpose. The study was conducted in the field setting. The statistical population consisted of managers, employees, experts, and customers of Tehran Municipality's Sports Organization. According to the information provided by the Sports Organization, a total of 54 sports complexes are currently operating across the city of Tehran. Considering the unlimited population and based on the sample-size formula, a sample of 384 participants was determined to adequately represent the statistical population.

For data collection, standardized questionnaires were used. The first questionnaire relates to revenue generation in sports complexes, designed by Rafiei (2021), consisting of 25 items across six main components: customer orientation (5 items), competitor orientation (5 items), human resources coordination (3 items), equipment (4 items), welfare facilities (5 items), and preference (3 items). This questionnaire was developed to evaluate the factors influencing revenue generation and utilizes a five-point Likert scale for responses, whereby participants express their level of agreement or disagreement with each statement from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alpha was used to assess the validity and reliability of the questionnaire, and results indicated acceptable reliability levels across all components, confirming the stability of the measurement instrument. Furthermore, the designed questionnaire allows for the precise differentiation of factors influencing revenue generation such as service quality, customer orientation, human resources coordination, and the condition of equipment and welfare facilities, making it suitable for correlation analysis and structural equation modeling.

In the data analysis process, after collecting the questionnaires, data were first examined using descriptive statistical indicators to identify demographic characteristics of the sample such as gender, age, education level, and marital status. Subsequently, exploratory factor analysis (EFA) was used to examine the relationships among variables and identify the latent structure of the data. This method supports identifying key dimensions and underlying patterns within the dataset and provides the basis for performing structural equation modeling. Additionally, EFA allows for assessing correlations among questionnaire components and removing ineffective items, thereby improving the accuracy and predictive power of the model.

Findings and Results

Descriptive demographic findings of the sample showed that of the 384 respondents, 52.1% were female and 47.9% were male, indicating a relatively balanced gender distribution. Regarding marital status, 60.9% were married and 39.1% were single, suggesting the presence of a predominantly adult and married population in the sample. In terms of education level, the highest frequency belonged to bachelor's degree holders (44.8%), while high-school diploma and associate degrees accounted for 17.2% and 15.6% respectively; master's degree holders formed 19.3%, and doctoral degree holders constituted only 3.1% of the sample. This distribution indicates that most respondents hold academic degrees, whereas fewer have pursued higher education. Descriptive statistics on participants' age showed that the mean age was 30.23 years with a standard deviation of 10.07 years, indicating relative dispersion within the sample. The minimum age was 18 and the maximum age was 67 years, representing a wide age range suitable for examining variables across different age groups.

In this study, exploratory factor analysis was conducted to determine and identify the factors influencing revenue generation in Tehran Municipality's sports complexes. Therefore, before performing factor analysis, the Kaiser–Meyer–Olkin (KMO) criterion was applied to ensure sampling adequacy, and Bartlett's test of sphericity was used to determine correlations among variables (items). According to the results in Table 1, the obtained KMO value was 0.785. This value indicates that the sample size is adequate for factor analysis and that conducting EFA on the dataset is appropriate, allowing the data to be reduced to a series of latent factors. Additionally, the results of Bartlett's test (χ^2 = 9401.645, p = .001) show that correlations among items are sufficiently high; therefore, proceeding with factor analysis is justified.

Table 1. Results of Bartlett's Test and KMO

Measure	Value
Kaiser–Meyer–Olkin Measure of Sampling Adequacy	0.785
Chi-Square (χ^2)	9401.645
Degrees of Freedom	300
Significance Level	.001

Next, the results obtained from the factor analysis of components along with the factor loadings are presented. According to the communalities table (Table 2), the initial estimates of communality for each variable were equal to one. The column labeled "Common Factor Variance" in Table 2 indicates the proportion of each variable's variance explained by the extracted factors. The closer these values are to 1, the better; lower values indicate that the variable (item) is not sufficiently suitable for factor analysis and should be removed. Based on expert opinion, variables whose factors explain less than 0.30 (or 30%) of their variance should be modified or removed. As shown in Table 2, all communalities exceed 0.30. Therefore, all variables (items) remain in the analysis.

Table 2. Initial Estimates and Communalities (Extraction Values)

Item	Initial Communality	Common Factor Variance	Item	Initial Communality	Common Factor Variance
Q1	1	0.80	Q14	1	0.82
Q2	1	0.81	Q15	1	0.82
Q3	1	0.74	Q16	1	0.70
Q4	1	0.68	Q17	1	0.57
Q5	1	0.78	Q18	1	0.77
Q6	1	0.95	Q19	1	0.66
Q7	1	0.94	Q20	1	0.60
Q8	1	0.72	Q21	1	0.61
Q9	1	0.61	Q22	1	0.54

Q10	1	0.71	Q23	1	0.89
Q11	1	0.67	Q24	1	0.91
Q12	1	0.68	Q25	1	0.96
Q13	1	0.85			

Table 3 reports the eigenvalues, variance percentages, and cumulative variance explained by each factor. Based on Kaiser's criterion, only factors with eigenvalues greater than one are selected, and factors with eigenvalues less than one are removed. Thus, the results in Table 3 indicate that the 25 items in this study can be reduced to 6 factors, enabling a new factor structure to be developed and used for data analysis.

Table 3. Eigenvalues and Variance Explained by Research Factors

Component	Initial Eigenvalues			Extracted Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.58	38.21	38.21	9.58	38.21	38.21
2	2.43	9.74	47.96	2.43	9.74	47.96
3	2.21	8.85	56.82	2.21	8.85	56.82
4	1.81	7.25	64.07	1.81	7.25	64.07
5	1.50	6.00	69.64	1.50	6.00	69.64
6	1.41	5.66	75.75	1.41	5.66	75.75

Finally, by referring to the scree plot (Figure 1), the explained variance table, and the columns of initial eigenvalues (first three columns) and extracted sums of squared loadings (next three columns), it can be concluded that a maximum of 6 factors were extracted. Among these, the first factor has the highest explanatory variance, which is clearly visible in the scree plot.

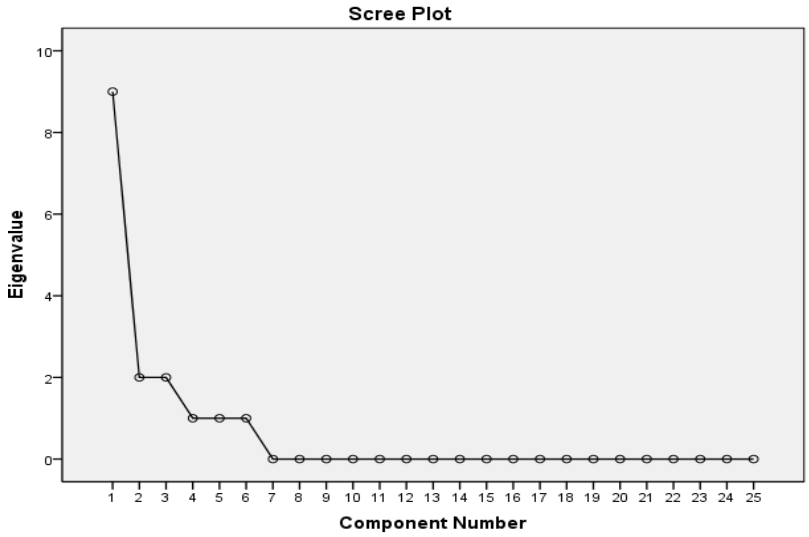

Figure 1. Eigenvalues of Factors Related to the Study Variables

The results also indicate the eigenvalues of the 100 factors, showing the differences among the factors and the clear distinctions between them. To categorize the items among the factors based on their factor loadings, the results of the rotated factor matrix must now be used. Table 4 presents the correlation matrix between items and factors after rotation. According to researchers, factor loadings above .50 are considered acceptable. In this table, each item has been classified by the researcher based on its highest factor loading and the degree of correlation

with other items. It is also important to note that one or more items may not have any meaningful loading on any factor; such items are removed from the model and consequently from the analysis.

Table 4. Rotated Component Matrix

Items	Customer Orientation	Competitor Orientation	Human Resources Coordination	Equipment	Welfare Facilities	Preference
Q1	.82					
Q2	.81					
Q4	.78					
Q3	.75					
Q5	.72					
Q8				.72		
Q9				.70		
Q10				.66		
Q11				.63		
Q12				.53		
Q25					.88	
Q6					.88	
Q7					.87	
Q18			.78			
Q19			.72			
Q20			.71			
Q21			.65			
Q14						.79
Q13						.76
Q15						.73
Q16						.59
Q17						.51
Q24						.86
Q23						.84
Q22						.60

Based on the results obtained from the exploratory factor analysis and the extraction of six factors in the questionnaire under examination, the items corresponding to the extracted factors are presented in Table 5.

Table 5. Description of Items for the Factors of Fan Management in Iranian Basketball Clubs

Factor	Item No.	Item Description	Factor Loading
Customer Orientation	1	The commercial objectives of the complex are guided by customer satisfaction.	.82
	2	Employees' commitment and orientation toward meeting customer needs are monitored.	.81
	3	The complex's strategies are based on competitive advantage derived from understanding customer needs.	.78
	4	Customer satisfaction is measured regularly and repeatedly.	.75
	5	Services of the complex are designed based on customers' needs.	.72
Competitor Orientation	6	The complex responds to competitive actions that threaten its position.	.72
	7	Management frequently asks customers about competitors' strengths.	.70
	8	Management frequently asks customers about competitors' strategies.	.66
	9	Information on the experiences of successful customers is obtained.	.63
	10	Information on unsuccessful experiences is obtained.	.53
Human Resources Coordination	11	All commercial functions of the complex are integrated to meet the needs of target customer markets.	.88
	12	Managers understand how everyone in the complex can contribute to creating customer value.	.88
	13	Customer surveys are conducted to evaluate service quality.	.87
Equipment	14	The sports space of the complex is attractive in terms of equipment.	.78
	15	Safety considerations are observed in the sports equipment.	.72
	16	The sports equipment of the complex can be used by different age groups.	.71
	17	Sufficient advertising is done for the use of the sports equipment.	.65

Welfare Facilities	18	Specialists are present in the complex to provide sports consultation.	.79
	19	The facilities of the sports complex are of good quality.	.76
	20	New and up-to-date equipment is used in the sports complex.	.73
	21	Maintenance of sports equipment and tools is carried out on time in the complex.	.59
	22	The sports complex provides opportunities for both individual and group exercise.	.51
Preference	23	The sports complex has adequate safety.	.86
	24	I want to spend as much time as possible in the sports complex.	.84
	25	Using the sports complex is low-cost and affordable.	.60

To ensure construct validity and to confirm the factors identified in the previous stage (exploratory factor analysis), the factors were examined using confirmatory factor analysis with the partial least squares (PLS) method. If a factor loading is less than .30, the relationship is considered weak and disregarded. A factor loading between .30 and .60 is acceptable, and values greater than .60 are highly desirable. Based on the results reported in Table 6, the factor loadings for the research items are acceptable, and the *t*-statistics were all greater than 1.96; therefore, all items were retained.

Table 6. Results of Confirmatory Factor Loadings

Factors	Item	Factor Loading	*t*-value	Significance Level
Customer Orientation	1	.85	30.84	.001
	2	.89	37.70	.001
	3	.82	21.72	.001
	4	.84	26.21	.001
	5	.82	17.09	.001
Competitor Orientation	6	.88	43.74	.001
	7	.88	41.18	.001
	8	.77	13.57	.001
	9	.62	9.33	.001
	10	.75	13.06	.001
Human Resources	11	.78	13.91	.001
	12	.84	27.95	.001
	13	.73	9.66	.001
Equipment	14	.80	17.00	.001
	15	.82	19.83	.001
	16	.78	17.25	.001
	17	.72	11.19	.001
Welfare Facilities	18	.88	18.58	.001
	19	.78	16.44	.001
	20	.72	12.18	.001
	21	.76	10.25	.001
	22	.50	5.18	.001
Preference	23	.89	32.69	.001
	24	.89	33.01	.001
	25	.73	18.33	.001

Discussion and Conclusion

The purpose of this study was to investigate the factors influencing revenue generation in municipal sports complexes and to analyze how customer orientation, competitor orientation, human resources coordination, equipment, welfare facilities, and customer preference contribute to the financial performance of public sports organizations. The findings of the structural equation model revealed that all six factors significantly predicted revenue generation, suggesting that sports enterprises increasingly depend on multidimensional managerial and service-related variables rather than only increasing service volume or expanding physical infrastructure. This

finding is strongly aligned with contemporary sports management literature, which emphasizes the centrality of customer-centered models, digital transformation, workforce competence, and innovation-driven systems in shaping the long-term success and sustainability of sports organizations (1-3).

The significant role of **customer orientation** confirmed in this study is consistent with the growing emphasis on value co-creation and customer engagement in social and commercial sports enterprises. Research shows that customer-oriented strategies improve organizational citizenship behavior, strengthen service quality, and shape customer loyalty through participatory mechanisms, ongoing feedback, and employee–customer interaction (10). By regularly monitoring customer satisfaction, tailoring services based on user needs, and employing data-driven market insights, municipal sports complexes can improve both user experience and long-term retention. Furthermore, studies in sports marketing indicate that a strong customer orientation expands market reach, enhances brand positioning, and supports sustained financial returns through user-centered promotional activities and service differentiation (14, 15). The present results reflect these theoretical claims by illustrating that organizations that invest in customer needs and adapt their strategic actions accordingly are more likely to generate consistent revenue streams.

Competitor orientation also emerged as a significant predictor of revenue generation. This result aligns with studies showing that sports enterprises must continuously track competitors' strengths, strategies, and customer bases to maintain their market relevance. The increasing commercialization of the sports industry, particularly within digital and online platforms, has reinforced the need for competitive intelligence and agile strategic responses (2). Research on innovation efficiency among sports firms also supports this view and demonstrates that external competitive pressures stimulate organizational innovation and operational adjustments that ultimately enhance performance outcomes (9). By gathering information about competitor actions and customer experiences, municipal sports complexes can position themselves advantageously within competitive urban environments.

The findings also demonstrated a substantial influence of **human resources coordination** on revenue generation. This is consistent with evidence showing that employee behavior, internal integration of services, and staff competencies directly contribute to service quality, customer satisfaction, and organizational stability (6). Effective human resources coordination enables managers to ensure that all departments operate cohesively toward customer-centric objectives. Studies on instructional strategies and workforce development further reveal that investment in training, digital literacy, and learning management systems enhances employee readiness and service delivery capacity, ultimately influencing organizational performance (4). Moreover, research on value co-creation in sports enterprises suggests that employees who understand their role in creating customer value demonstrate stronger engagement, higher motivation, and improved performance outcomes (10). This resonates with the findings of this study, in which human resources coordination emerged as a central determinant of financial success.

Equipment quality also demonstrated significant effects on revenue generation. Customer perceptions of safety, modernity, and usability of sports equipment strongly influence user satisfaction, service adoption, and long-term loyalty, which are key revenue drivers for municipal sports facilities. Evidence from sports goods manufacturing enterprises indicates that investments in equipment innovation, quality enhancement, and safety measures not only increase operational efficiency but also strengthen organizational legitimacy and environmental competitiveness (11, 12). Studies on entrepreneurship in the sports industry further highlight that innovative and well-maintained equipment improves user trust, enables new service offerings, and supports more diverse participation

opportunities, thereby boosting financial performance (13). The current findings provide empirical support for these claims by showing that modern, accessible, and safe equipment forms a foundational element of revenue generation strategies for municipal sports complexes.

In addition, the impact of **welfare facilities** on revenue is strongly supported by the literature. Welfare facilities such as consultation services, rest areas, clean environments, accessibility enhancements, and supportive staff contribute to a holistic service experience that extends beyond physical exercise. Research on marketing through sports emphasizes that customers increasingly expect sports organizations to provide comprehensive value that integrates social, psychological, and recreational needs, which is facilitated through well-designed welfare facilities (15). Evidence from digital transformation studies also suggests that customer comfort, ease of access, and the availability of supportive amenities are essential to cultivating customer preference and behavioral loyalty (8). Accordingly, the present findings affirm the importance of investing in non-equipment facilities to create positive customer experiences that encourage repeat participation and higher revenue.

Finally, the strong influence of **customer preference** on revenue generation indicates that users' emotional attachment, perceived affordability, and trust in facility safety significantly shape their willingness to invest time and money in a sports complex. This is consistent with findings from organizational psychology and sports behavior research, which show that customers' psychological wellbeing, perceived value, and personal preference strongly predict participation in recreational activities (16). Studies on green innovation and digital finance further demonstrate that customers increasingly prioritize safe, reliable, technologically updated, and environmentally responsible sports environments when choosing where to exercise (3, 12). These tendencies reinforce the present findings by suggesting that municipal sports complexes must foster trust, affordability, and emotional satisfaction to maintain stable participation and revenue.

The findings of this research also align with global discussions regarding the strategic modernization and digital transformation of sports enterprises. Digital transformation not only enhances operational efficiency but also contributes to high-quality development, market expansion, and value enhancement, particularly within sports enterprises undergoing structural modernization (1). Digital innovation also enables data integration, customer profiling, and intelligent decision-making, which are essential for optimizing revenue management in sports facilities. Moreover, digital finance has emerged as a critical catalyst in supporting sports enterprises' innovation, competitiveness, and scalable service offerings (7). By adopting digital tools, municipal sports complexes can improve service accessibility, facilitate financial transparency, and offer diverse digital services that align with contemporary customer expectations.

Additional insights from physiological and health-related research also support the study's findings indirectly. Physical engagement activities such as swimming, aerobic exercise, and structured training programs influence both physical and psychological health outcomes, which contribute to customers' continued participation and preference for sports services (5). As customers become more aware of the health benefits of sports participation, the demand for well-equipped and well-managed sports complexes increases, reinforcing the positive relationship between equipment quality, welfare facilities, and revenue.

Collectively, the study results confirm that sports complexes must adopt comprehensive, strategically integrated management approaches that address customer needs, competitor dynamics, workforce coordination, equipment modernization, and welfare facility improvement. This multi-dimensional model of revenue generation aligns with

contemporary trends in sports enterprise management, digital transformation, and sustainability-oriented practices across global contexts.

This study was conducted within a single metropolitan context, which limits the generalizability of the findings to other cities or regions with different socioeconomic, cultural, or infrastructural conditions. Data collection was based on self-report questionnaires, which may introduce response bias or social desirability effects. Additionally, the study focused solely on internal service and management factors and did not examine environmental, policy, or seasonal influences that may affect revenue patterns. The cross-sectional design also limits the ability to infer causal relationships.

Future studies should consider conducting multi-city or cross-cultural comparisons to enhance the generalizability of the results. Longitudinal designs could be implemented to track changes in revenue-related variables over time and capture causal relationships more accurately. Further research could incorporate external factors such as policy frameworks, economic conditions, competition intensity, or community engagement. Additionally, future studies may explore the role of artificial intelligence, digital platforms, and smart facility management technologies in shaping revenue generation in municipal sports complexes.

Municipal sports managers should prioritize customer orientation strategies, including regular satisfaction assessments and personalized service planning. Investment in equipment modernization, safety metrics, and welfare facilities should be considered essential rather than optional. Managers should enhance staff coordination through training, communication, and shared value creation frameworks. To remain competitive, sports complexes should systematically monitor competitor strategies and implement data-driven business intelligence tools. Finally, fostering emotional attachment, affordability, and user trust can significantly increase customer preference and revenue sustainability.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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