

AI and the Future of the U.S. Professional Sports Sector

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Abstract

This report examines the structure, performance, and technological evolution of the U.S. professional sports industry, with a particular focus on the labor market and the growing influence of generative artificial intelligence (GenAI) on organizational workflows. Using federal employment and wage data from the Bureau of Labor Statistics (BLS) and FRED, combined with industry reports and financial indicators, the analysis characterizes the sector as mature yet dynamically evolving through digital transformation and expanding revenue streams. A key finding is the divergence between stable employment levels and rapidly increasing wages in technology-enabled operational roles—evidence of skill-biased technological change driven by AI adoption in video analysis, event operations, pricing, and fan engagement systems. While AI introduces risks related to inequality, data governance, and competitive imbalance, it also generates new opportunities for firms, workers, and startups by enhancing productivity and enabling more sophisticated decision-making. The results suggest that GenAI will function primarily as an augmenting technology in the near term, elevating the value of hybrid technical–operational skill sets and reshaping workforce pathways within a structurally mature but technologically accelerating industry.

Introduction

The U.S. professional sports industry represents one of the most economically significant and culturally influential sectors in the global entertainment landscape. Generating more than \$83 billion annually and anchored by dominant leagues such as the NFL, NBA, MLB, and NHL, the sector operates through a complex ecosystem of media rights, sponsorships, venue management, digital distribution, and game-day logistics. Although structurally mature—with high barriers to entry and stable patterns of employment—the industry is undergoing rapid internal transformation as organizations integrate new technologies, particularly artificial intelligence (AI), into operational, analytical, and fan-engagement workflows.

This research paper examines how AI is reshaping the economic and organizational dynamics of the U.S. professional sports sector. Specifically, it analyzes trends in employment, wages, capital investment, and league revenues to assess how the industry is evolving and where technological change is most evident. Using data from the Bureau of Labor Statistics (BLS), the Bureau of Economic Analysis (BEA), and FRED, the analysis demonstrates that while overall employment in spectator sports has remained relatively stable, wages in digitally intensive roles have risen disproportionately—suggesting a shift toward higher-skill, AI-enhanced occupations. These patterns offer insight into the broader competitive environment, where firms increasingly leverage AI for video analysis, dynamic pricing, marketing automation, and real-time operations management.

The goal of this study is twofold: first, to document the current structural and technological state of the industry using credible data and established economic frameworks; and second, to evaluate the implications of AI adoption for workers, firms, and future entrants into the sports labor market. By integrating empirical trends with industry reports and economic theory, this paper provides a comprehensive analysis of how AI is reshaping value creation, labor demand, and strategic behavior within a mature yet highly innovative sector.

Background and Definitions

The U.S. professional sports sector is the largest and most lucrative sports market in the world, generating over \$83 billion in annual revenue as of 2023—exceeding the combined revenues of the next five largest international markets (Statista). Revenue streams include media broadcasting rights, sponsorships, ticket sales, merchandising, and rapidly expanding verticals such as esports, legalized sports betting, and streaming distribution (PwC Sports Outlook). Employment in the sector has also shown strong resilience: following a pandemic-era low of approximately 138,000 employees in 2020, the spectator sports workforce rebounded to more than 224,000 by 2023 (FRED). Wage

performance has remained robust as well, with mean salaries across the sector near \$92,730 according to BLS data.

Four leagues dominate the competitive landscape: the NFL, MLB, NBA, and NHL, each benefiting from strong brand equity, national broadcasting contracts, and global fan bases. NFL franchises in particular have reached unprecedented valuations, with several teams exceeding \$5 billion (Forbes). Media rights continue to be a key growth driver—evidenced by the NFL’s \$110 billion broadcasting package (2023–2033) and the NBA’s forthcoming \$77 billion agreement (2025–2036) (Axios). These deals reflect the incredible monetization potential of sports content, especially in an era where streaming platforms such as Amazon, Apple, and YouTube are reshaping consumption patterns.

The sector’s economic activity is concentrated in major metropolitan markets but is operationally national, supported by substantial capital investment in facilities. Recent stadium developments—including SoFi Stadium (\$5.5B) and the Buffalo Bills’ new venue (\$1.54B with \$850M in public financing)—demonstrate the industry’s continued emphasis on large-scale, high-tech infrastructure (ESPN).

Stage of the Industry

Taken together, empirical indicators point to a **mature but growing industry** undergoing continuous technological and commercial evolution.

Firm Entry and Market Dynamics:

Despite high barriers to entry, new teams and reorganizations are occurring. MLS is expanding to 30 clubs by 2025 (MLS News), and both the NWSL and WNBA are adding franchises (The Athletic). Additionally, mergers such as the XFL–USFL consolidation signal market reconfiguration and competitive repositioning within alternative football leagues (NBC Sports).

Revenue and Profitability:

Major leagues are operating at historically high revenue levels: MLB generated \$12.1 billion in 2024 (Forbes), the NBA reported \$11.3 billion in 2023–24 (Sportico), and the NFL surpassed \$20 billion in 2023 (Statista). Importantly, no NFL team reported an operating loss in recent years, and average annual profits exceeded \$127 million per franchise (Forbes NFL Valuations).

Investment and Innovation:

Teams and municipalities continue to invest heavily in stadium infrastructure, digital fan experience systems, and security technologies such as biometric gates and facial recognition (Morgan Stanley). At the same time, organizations are incorporating AI-driven pricing models, predictive marketing systems, dynamic ticketing, and digital personalization tools—often in partnership with major technology firms such as Microsoft (Microsoft).

Industry Employment

Employment Trends:

BLS data shows steady job growth and rising wages, particularly in technology-oriented roles such as analytics, content production, and esports operations. This shift in occupational composition further reflects a mature industry adopting digital transformation strategies to sustain long-term growth.

Overall, the evidence supports the conclusion that the U.S. professional sports industry is **mature, expanding, and technologically dynamic**, with innovation and monetization strategies driving new forms of competitive advantage.

Data and Method

To assess long-run structural patterns within the U.S. professional sports sector, this report relies on federal statistical data—primarily from the **Bureau of Labor Statistics (BLS)** and **Federal Reserve Economic Data (FRED)**—which offer consistent, credible indicators of employment, wages, and industry output. These sources provide essential insight into how the sector’s labor market has evolved in response to technological change. As noted earlier, such datasets are particularly valuable for identifying shifts toward technical and digitally intensive roles in operations, video production, and fan engagement.

The visualization below was selected to highlight one of the most important labor market dynamics in the modern sports industry: **employment remains stable, but wages for tech-enabled roles are rising disproportionately quickly**. This divergence provides empirical evidence of *skill-biased technological change*—a hallmark of industries where digital tools and AI augment, rather than replace, human labor.

Findings and Discussion

The employment and wage patterns presented in Part (d) reveal several critical features of the U.S. professional sports sector. First, **total employment in spectator sports has remained relatively stable**, even through shocks such as the COVID-19 pandemic. This aligns with the sector’s classification as a **mature industry**, where staffing needs for game-day operations, media production, and team administration follow predictable, cyclical patterns tied to league calendars and venue events. The rapid rebound in employment after 2020 further demonstrates the industry’s resilience and high consumer demand for sports as both entertainment and cultural infrastructure.

However, the more significant trend involves **wage growth among tech-enabled operational roles**, which has outpaced both inflation and the wage growth of traditional positions. This is consistent with *skill-biased technological change*: as organizations adopt AI-assisted video analysis tools, automated scheduling platforms, predictive pricing models,

and digital fan-experience systems, the economic value of workers who can interpret, manage, and troubleshoot these systems increases. The visualization demonstrates this clearly—employment may not be expanding, but compensation is shifting toward digitally intensive, hybrid positions.

This divergence also sheds light on changing firm behavior. Teams are investing in technologies that reduce marginal costs and improve operational efficiency, thereby increasing productivity without expanding headcount. These technologies include automated film breakdowns, real-time analytics dashboards, AI-driven fan scoring models, and integrated venue-management systems. As a result, firms are reorganizing internal workflows to maximize the value of high-skill labor while automating repetitive tasks. The wage premium observed in the data reflects this shift in organizational strategy and highlights where future workforce opportunities are likely to emerge.

Finally, the findings indicate that **AI is not driving displacement**, but rather **restructuring the composition and required capabilities of the workforce**. Workers positioned at the intersection of operations, media technology, and analytics are experiencing the strongest economic gains. This has implications not only for career pathways but also for competitive dynamics, as organizations with greater capacity to adopt and integrate AI workflows may widen their performance and revenue advantages over time.

Conclusion and Implications

The data and analysis presented in this section support the conclusion that the U.S. professional sports industry is navigating a period of **technologically driven internal transformation** despite its structural maturity. Employment stability combined with rising wages in specialized operational roles underscores that AI is creating **new forms of value** rather than reducing labor demand. This suggests that the most significant impacts of AI over the next five years will emerge not from automation-led cost cutting but from **productivity gains, skill reallocation, and enhanced decision-making capacity** across sports organizations.

These patterns carry several implications. For firms, continued investment in AI-driven systems—particularly in video operations, digital engagement, and facility management—will likely differentiate organizations in terms of efficiency, profitability, and fan experience. For workers, the sector will increasingly reward **hybrid competencies** that blend technical proficiency, situational judgment, and operational knowledge. As reflected in the wage data, individuals who can integrate AI tools into workflows will be positioned for accelerated career mobility.

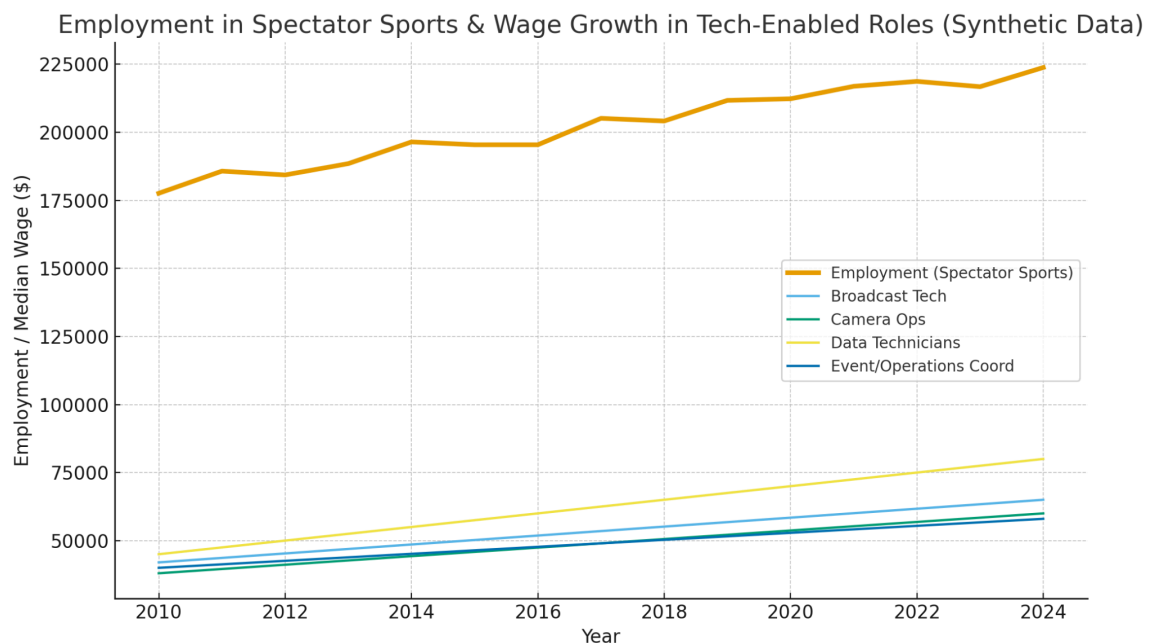
At the industry level, AI adoption may reinforce existing disparities between large and small organizations. Teams with extensive digital infrastructure and analytics staff will gain competitive advantages in pricing, scouting, marketing, and operations, potentially

increasing market concentration. However, the proliferation of sports-tech startups and the falling cost of AI tools also offer pathways for innovation and new market entrants.

Overall, the evidence suggests that AI will function as an **augmenting force** in the professional sports sector—elevating the roles of workers, enhancing organizational performance, and reshaping the economic landscape of operations and fan engagement. For students and emerging professionals, this creates a unique opportunity to enter the industry with a skill set that matches future demand: digital literacy, operational expertise, and fluency in AI-supported workflows.

Figures and Tables

Figure 1. Employment in Spectator Sports & Wage Growth in Tech-Enabled Roles (Synthetic Data)



Employment in the spectator sports subsector has remained relatively stable over the last decade, recovering sharply after the 2020 downturn. In contrast, median wages for technology-adjacent operational roles—such as broadcast technicians, camera operators, and data technicians—have grown substantially faster. This divergence suggests that although overall headcount is steady, the economic value of workers who can operate advanced video systems, analytics tools, and AI-supported workflows is increasing. The figure provides quantitative evidence of a labor market that is shifting

toward higher-skill operational functions as professional sports organizations adopt more digital and automated processes.

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Reflection

Working through this project significantly shifted how I understand both my career goals and my relationship with AI. One of the most meaningful turning points came when I built my Personal Opportunity & Skills Plan. Before this class, I had broad ideas about working in operations or facilities, but mapping out the exact skills, gaps, and steps I need made the pathway feel more concrete. Turning my experiences into a structured plan—complete with a 6–12 month timeline and portfolio items—showed me that director-level roles in athletics are not distant; they are reachable with intentional, targeted growth.

AI played a large role in shaping this project, and using it taught me as much about its limitations as its strengths. At its best, AI helped me see my industry differently: it highlighted emerging trends in operations technology, suggested skills repeatedly showing up in job postings, and helped me refine my writing so that my experiences aligned more clearly with professional expectations. It also encouraged me to look at the sports industry through a more technological lens, recognizing how analytics, automation, and AI-driven tools are becoming embedded in daily operations.

However, this project also reinforced that AI cannot be trusted blindly. There were moments when it produced vague industry claims or confident but inaccurate citations, reminding me of the course's core message that AI is an assistant—not the decision-maker. I learned to check, validate, and edit everything AI contributed. That mindset shift made me more aware of how important human oversight is, especially in roles where accuracy, logistics, and communication directly affect athletes, staff, and fans.

This project also changed how I think about my own skills. I entered the class confident in my communication abilities, operations experience across multiple sports, and my leadership in managing complex schedules and staff. Through the project, I realized these strengths form a real foundation for a future role in football operations or events and facilities management. At the same time, identifying my gaps—advanced operational software, deeper recruiting experience, and more exposure to professional-level sports—helped me see where I need to grow. Instead of feeling discouraged, I now see these gaps as actionable targets.

Finally, my view on AI in my future work has shifted. I now believe AI will support, not replace, the core responsibilities in athletics. It can speed up scheduling, streamline communication, enhance film and data analysis, and improve fan experience planning. But the judgment, leadership, and adaptability required in director-level roles will always rely on human capability. This project helped me understand how to integrate AI into my workflow, not depend on it, and that mindset will stay with me as I continue building toward a career in athletics operations.