

Beyond Instinct : India's Sporting Future in Data



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Jalaj Dani
President, SPORTSCOM

MESSAGE FROM PRESIDENT

It gives me great pleasure to present this report on “Beyond Instinct: India’s Sporting Future in Data”, developed by ColLearn Sports in collaboration with SPORTSCOM.

In recent years, the role of data and analytics in sport has evolved from being a competitive differentiator to becoming an essential component of athlete development, fan engagement and organisational decision-making. As India moves towards becoming a global sports hub, it is critical for stakeholders across the ecosystem to embrace data-driven practices and build the necessary capabilities to support them.

This report is a valuable step in that direction. It offers insightful observations on the current landscape and highlights the opportunities that lie ahead for teams, federations, technology firms and policy makers. I am confident that it will serve as a useful reference for organisations looking to adopt or scale data-led interventions in sport.

I would like to congratulate ColLearn Sports and SPORTSCOM for undertaking this important initiative and encourage all stakeholders to actively contribute to this evolving dialogue.



**Subramaniam Ramakrishnan
(Ramky) – India's First
Performance Analyst and
SPORTSCOM Member**

MESSAGE FROM INDIA'S FIRST PERFORMANCE ANALYST

"Data is the new oil that helps start conversations. Data is primary, video is secondary. Our job is to convert data into intelligence."

For decades, Indian sport has thrived on instinct — the genius of a player, the intuition of a coach, the wisdom of a selector. But instinct alone can no longer define the future. In the age of competitive sport, data is the new playbook.

From fitness metrics to tactical decisions, from scouting young talent to preventing injuries, data has become the invisible teammate every athlete needs. What matters now is not just collecting numbers, but knowing what to collect, how to collect it, and how to make it speak.

Sport is not built in silos. Performance data must talk to fitness data, tactical insights must connect with mental conditioning, and match intelligence must integrate with recovery science. Only then can we build a single source of truth that drives sporting excellence.

India's next leap in sport will come not from instinct versus data, but from when instinct meet intelligence. The first edition of the report — Beyond Instinct: India's Sporting Future in Data — explores how analytics, integration, and intelligence can transform our athletes into digital twins of performance, resilience, and potential.

The future belongs to those who see sport not just as a contest of skill, but as a symphony of interconnected insights.

Introduction

The Global Context of Data

In the digital economy, data has emerged as the cornerstone of innovation and growth. Often described as “the new oil,” data fuels industries worldwide by driving efficiency, enabling personalization, and creating new revenue streams. From healthcare, where it powers precision medicine, to finance, where it mitigates risks, to retail, where it anticipates consumer behavior — data-driven decision-making has evolved from being a competitive advantage to a fundamental necessity. Industries that once relied on instinct and experience now thrive on analytics, artificial intelligence (AI), and predictive modeling to navigate uncertainty and achieve sustainable success.

Why Sports Cannot be Left Behind

The world of sports, historically defined by passion, instinct, and raw talent, is now entering the same data-driven era. Every pass, shot, sprint, and fan interaction leaves behind a digital footprint that, when analyzed, provides unprecedented insights. Athletes harness wearable technology to optimize performance, coaches employ predictive analytics to refine strategies, and organizations leverage fan data to deepen engagement and expand revenue streams. From cricket stadiums in India to football arenas across Europe, data and AI are becoming as integral to sports as skill and strategy themselves. To ignore this transformation is to risk being left behind in an increasingly competitive global sporting ecosystem.

The Purpose of The First Edition of This Report

The first edition of this report “Beyond Instinct: India’s Sporting Future in Data” is a collaboration between SPORTSCOM and ColLearn Sports. This report explores the transformative power of data in reshaping sports. It highlights the opportunities and challenges of data adoption, addressing key issues such as

- Affordability
- Data Ownership
- Privacy
- Standardization
- Centralisation vs Decentralisation
- Interactivity of Data amongst Various Functions

As we navigate this new frontier, one truth becomes clear: instinct will always define sport, but instinct sharpened by data will define champions. This report aims to serve as both a roadmap and a call to action for stakeholders across the sporting ecosystem — athletes, federations, business of sports and fans — to embrace the possibilities of data and steer the industry toward a future of boundless opportunity.

Why the future of sport belongs to those who master the numbers behind the game?

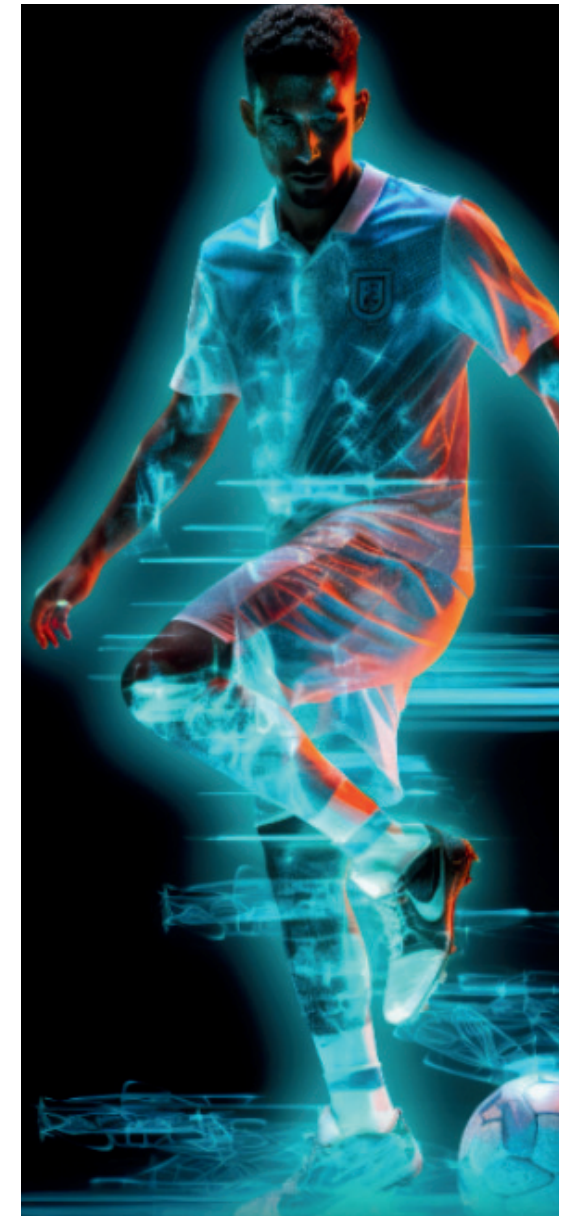
From cricket nets to football fields, Indian sport is moving from gut feel to data-backed precision – and AI is the silent force driving it.

Today, numbers don't just sit in spreadsheets and scorecards anymore – they pulse through every decision in modern sport. In India, where cricket is religion and football is steadily winning converts through the ISL, data and artificial intelligence have slipped into the dugouts, the nets, and even the boardrooms. The “gut feel” of a coach still matters, but increasingly it is being sharpened, validated, or challenged by analytics.

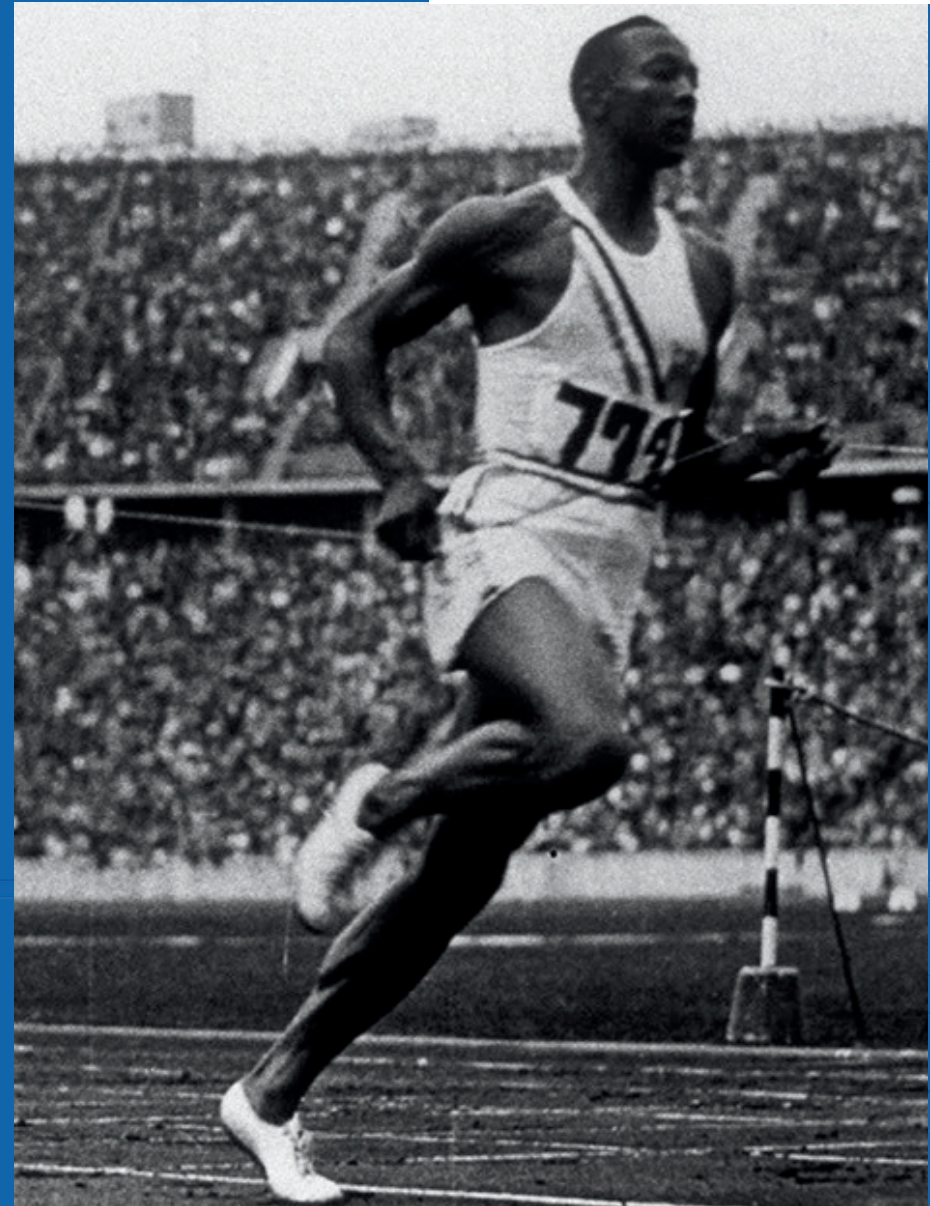
Take the IPL, behind the sixes and yorkers lies a quiet revolution of algorithms predicting match-ups: which spinner should bowl to which left-hander, how much risk a captain should take in the powerplay, or even how workload monitoring can prevent a pacer's breakdown in the middle of a tournament. Meanwhile, ISL clubs are using GPS trackers and AI-driven video analysis to measure not just how far players run, but how effectively they move into space, how quickly they recover, and how their decision-making evolves under fatigue.

For athletes, this new reality is both empowering and demanding. Virat Kohli's fitness evolution, backed by relentless data tracking, has become a benchmark in Indian cricket, while young footballers at grassroots academies are being assessed on heat maps and sprint metrics that were once the preserve of Europe's elite clubs. Fans, too, are drawn into the game differently: social media analytics now influence how franchises design campaigns, sell merchandise, and even select content that keeps supporters hooked well after the final whistle.

The future, however, is clear: sports that master data will master the game. The way forward lies in smarter investments – from wearable technologies that track player health in real time, to predictive AI models that forecast performance and injury risks, to fan-engagement platforms powered by social media insights. At the same time, the industry must safeguard privacy, build stronger data governance frameworks, and ensure that every coach, athlete, and manager is data-literate.



Historical Background of Data- Driven Decision- Making in Sports



The marriage between sport and data didn't happen overnight — it has been a journey of skepticism, breakthroughs, and transformation. While today's athletes rely on GPS trackers, wearables, and AI-powered video systems, the roots of analytics in sport trace back to 1970s America. Baseball historian Bill James questioned long-accepted measures like batting averages, pioneering sabermetrics to uncover deeper truths about player performance. His radical ideas challenged tradition but slowly reshaped thinking. In the early 2000s, Billy Beane's Oakland Athletics put those principles into practice, using data to build a competitive team despite limited budgets. Their success proved the power of numbers over instinct and sparked a global movement — one that would eventually redefine how every sport, from cricket to football, approached performance and strategy.



Their story went on to capture global attention through Michael Lewis' bestselling book and the Hollywood film *Moneyball* (2011) starring Brad Pitt — turning analytics from a niche experiment into a mainstream sporting revolution.

The use of data in Indian sports has evolved from manual record-keeping and informal observations before the 1980s to detailed scorecards and statistics after the 1983 World Cup, when cricket's success made structured data mainstream. Through the 1990s, analytics remained largely descriptive, but the early 2000s brought a decisive shift with tools like Hawk-Eye and video-based motion analysis. India's own "Moneyball" moment came in 2003, when Ramky joined the Indian cricket team during the India-Australia series as its first performance analyst, introducing structured video and data insights that transformed tactical preparation. The launch of the IPL (2008) made analytics central to scouting, player selection, and match strategies, and today Indian sport has moved from raw observations to AI-driven models, biomechanics, and performance databases, making data an inseparable part of its competitive future.

Case Study: Ramky – The Man Who Brought Data Into Indian Cricket

A Handycam That Changed Everything (2000)

- In the year 2000, Subramaniam Ramakrishnan – better known as Ramky – received a Sharp Handycam from his father. For most, it was a travel gadget. For him, it was a spark.
- He took it straight to the cricket ground. By the end of that match, he wasn't just a player – he was an analyst. The camera revealed flaws in his own technique, patterns in his teammates, and a new way to communicate with kids who had never seen their mistakes so clearly.
- The players were hooked. Ramky was convinced:
 - **Video could be the mirror that cricket needed.**

The Day That Changed Indian Cricket (2003)

- At the MRF Pace Foundation, whispers about this "video guy" reached John Wright, then coach of India. Wright invited him for a short 45-minute demo at the National Cricket Academy.
- The session didn't last 45 minutes. It lasted the entire day.
- And so, in 2003 at Mohali during the India–New Zealand series, Ramky became India's first performance analyst, debuting alongside bowler L. Balaji.



Too Early, Too Bold

- Inspired, he tried to build India's first video-motion analysis system for coaching. It bombed.
 - Coaches resisted: "You're making the game too complicated."
 - Players ignored it.
 - The market wasn't ready.
- But Ramky wasn't one to give up. To afford a laptop, he had to sell 10 licenses of software. Until then, he dragged a desktop CPU to every ground.
- No one listened – but slowly, services picked up.

From VHS Tapes to BCCI Dressing Room

- His early assignments were brutal. In the Ashes, he slogged through 25 VHS cassettes, breaking down hours of footage manually. But results spoke. Players started to trust the numbers. Coaches started to ask questions.
- **The dressing room, once hostile to "technology," was warming up to data.**

Sports Mechanics: Born in a Garage (2006)

- By 2006, Ramky took the plunge and founded Sports Mechanics in true start-up style – from a garage.
- Its motto was clear and audacious: **“Winning with Data.”**
- Recorded matches anywhere in the world.
- Built a 20-year repository of every cricket match. It now sits on 500 terabytes of video and audio, covering two decades of cricket.
- Launched the world’s first Sports Data Centre, giving teams a cockpit of competitive intelligence.

Beyond Numbers: The Digital Twin of an Athlete

- Ramky believes analytics is not about reducing sport to numbers. It’s about:
 - Marrying sports science + data science.
 - Creating a digital twin of the athlete – a 360° view of fitness, form, and decision-making.
 - Making cricket smarter, not colder.
- When asked which cricketer first embraced analytics, Ramky points to Anil Kumble – the pioneer who saw data as an ally, not a threat.

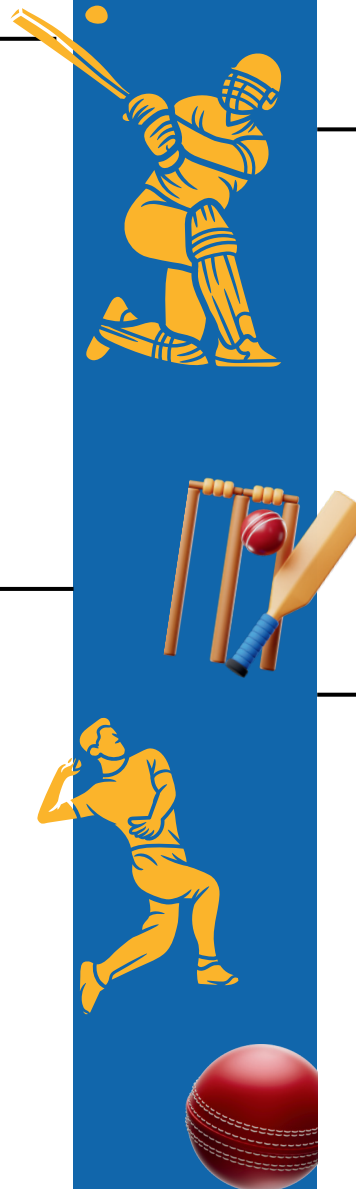
👉 **25% Research + 25% Subconscious State of the Player + 50% Execution = Victory.**

Moneyball Meets IPL (2011)

- In 2011, Hollywood’s Moneyball glamorised analytics. In India, Sports Mechanics had already been doing it for years. Suddenly, **franchises and federations wanted in.** IPL teams queued up.
- Analytics wasn’t “geeky” anymore – it was the new secret weapon.

Legacy: The Data Whisperer of Indian Cricket

- What started with a Sharp Handycam has become a movement that changed Indian cricket forever.
- Ramky is not just the first performance analyst of India. He is proof that:
 - *Vision matters more than timing.*
 - *Persistence beats resistance.*
 - ***And in sport, as in life, data doesn’t replace passion – it amplifies it.***



Research Methodology

This study uses a cross-sectional mixed-methods research design to assess data usage, challenges, technology adoption, and strategic impact across the sports industry. Three complementary approaches informed our findings:

1. Survey-Based Data Collection

An online questionnaire was distributed to stakeholders such as sports tech firms, analysts, journalists, marketers, and grassroots organizations. It included:

- Quantitative items (e.g., rating data-driven decision-making, investment levels)
- Qualitative questions (e.g., describing data challenges, examples of data-led strategies)
- Responses were collected via online forms and organized for analysis.

2. Secondary Research

We reviewed industry reports, academic studies, and articles to contextualize our findings and explore trends in data practices and technology use in sports.

3. Semi-Structured Interviews & Case Studies

We also carried out semi-structured interviews with key stakeholders from leading sports organizations, providing deeper insights and validated case studies—such as the use of player scorecards by the Yogasana Federation—offering real-world examples of strategic data use.

Sample & Respondents

A broad spectrum of sports industry professionals(60+) participated, intentionally including organizations operating with both centralized and decentralized data systems. This diversity facilitated a holistic view of sector-wide practices and perspectives.

Data Analysis

The collected data was analyzed using several approaches:

- Quantitative analysis: Aggregation of ordinal scale data (ratings) to uncover key trends, averages, and benchmarks.
- Qualitative thematic analysis: Synthesis of open-ended and interview responses to extract themes, recurring challenges, exemplary practices, and technology usage.
- Cross-comparison: Exploration of relationships and differences among respondents regarding technology tools, data centralization, investment plans, and priorities.
- Illustrative quotes and stories: Selection of impactful quotes and detailed case examples to enrich and authenticate the findings.



Hypothesis – The Core of the Research

By combining surveys, secondary research, and interviews, this study offers a comprehensive view of current data practices, key challenges, and strategic opportunities in the sports industry. The mixed-methods approach enables benchmarking, in-depth insights, and practical recommendations to advance data literacy and adoption across the sector.

The sports industry is not a single entity but an intricate ecosystem powered by four principal stakeholders: Athletes, Federations, Fans, and the Business of Sports. Each is indispensable, and their interplay determines the trajectory of growth and innovation within the sector.

- **Athletes – The Catalysts of Performance and Inspiration**

- At the heart of sport are the athletes—disciplined, resilient, and relentlessly driven to push human limits. Their performances inspire global audiences, shape cultural narratives, and spark commercial opportunities. Beyond medals and milestones, athletes embody the drama and aspiration that make sport a universal language.

- **Federations and Governing Bodies – The Custodians of Integrity**

- Sports federations function as the architects and regulators of the industry. They set the rules, ensure fair play, safeguard athlete welfare, and provide the platforms where talent can flourish. From grassroots to global stages, their role extends beyond competition management to include integrity, transparency, and the long-term development of sport.

- **Fans – The Economic and Emotional Engine**

- Fans remain the lifeblood of sport. Their passion fills stadiums, drives broadcast ratings, and sustains the emotional theatre of competition. Economically, their participation—through ticketing, subscriptions, merchandise, and digital engagement—fuels the financial sustainability of teams, leagues, and events. Culturally, fans create communities, traditions, and rivalries that elevate sport from competition to spectacle.

- **The Business of Sports – The Commercial Multiplier**

- Surrounding this passion is a vast commercial ecosystem: leagues, broadcasters, sponsors, brands, agencies, and technology providers. These stakeholders transform passion into revenue, ensuring the industry's sustainability. Sponsorship deals, broadcast rights, merchandising, and sports tech innovation convert sporting excellence into measurable value.



The Synergy

When these four forces converge, they create a virtuous cycle: athlete performances ignite fan passion; fan passion attracts commercial investment; commercial investment enables federations to expand reach and resources; federations provide athletes with structured platforms to excel. This dynamic loop sustains not just the business of sport but its cultural and social resonance.

In essence, the future growth of the sports industry lies in harmonizing these interdependent relationships while adapting to the rapidly shifting demands of a global, digital-first audience.



Data-Driven Decision Making in Sports: Empowering Athletes, Coaches, and Teams



Data-Driven Decision Making in Sports: Empowering Athletes, Coaches, and Teams

Data has emerged as the cornerstone of success across the spectrum of sports, from aspiring athletes at the grassroots level to world champions on the global stage. In today's competitive environment, outcomes can no longer be left to chance or retrospective evaluation alone. Proactive collection, systematic analysis, and rigorous benchmarking against international standards are essential for identifying and nurturing elite talent. Embracing technology and data-driven methodologies throughout the sports ecosystem promises not only the discovery of tomorrow's heroes but also a sustained pipeline of high-performance athletes, ultimately driving the industry forward.



Athletes across diverse disciplines now leverage data to enhance performance, monitor progression, and make informed adjustments in training, nutrition, and recovery. Below are key domains where data integration is transforming athlete preparation and competition:

1. Performance Tracking:

Wearable technologies such as GPS trackers, accelerometers, and heart rate monitors enable precise quantification of training load and physical output. Metrics including distance covered, velocity, and cardiac response guide athletes in assessing their fitness and conditioning. For example, LeBron James employs these tools to optimize workload management, recovery cycles, and sleep quality, thereby sustaining peak form.

2. Biometric Data Analysis:

Monitoring of physiological signals, including heart rate variability and sleep patterns, informs individualized readiness and health status. Elite long-distance runners utilize these insights to calibrate training intensity and foster injury prevention.

3. Training Optimization:

Data shapes bespoke training regimens tailored to performance goals. Marathoner Eliud Kipchoge's sub-two-hour record attempt exemplifies data-driven planning, factoring pace, environmental conditions, and race dynamics.

4. Nutrition Management:

Athletes apply data from dietary tracking apps to fine-tune macronutrient and micronutrient intake, optimizing energy availability and recovery.



5. Video Analysis:

Detailed review of performance footage facilitates technique refinement and strategic development. Olympic gymnast Simone Biles and her coaches systematically analyze video to perfect form and execution.

6. Injury Prevention:

Through motion sensors and wearable devices, biomechanical patterns are examined to detect early signs of fatigue or injury risk. NBA players like Stephen Curry utilize this data to adjust training loads and prevent overuse injuries.

7. Opponent Analysis and Game Strategy:

Teams and individual athletes deploy data analytics to decode opponents' tendencies and craft informed tactical responses. Chess players, for instance, analyze historical matches via data tools to refine opening strategies.

8. Goal Setting:

Data-informed progress tracking motivates athletes, assisting sprinters in optimizing stride and start times or weightlifters in calibrating strength benchmarks.

While federations drive systemic change, athletes and teams show how data directly enhances performance, preparation, and results. The following examples highlight how top Indian performers are embedding analytics into their game.

1. Virat Kohli – Fitness Redefined

- **Focus:** Fitness monitoring & workload management.
- **How Data Helps:** Kohli's fitness transformation has been driven by GPS trackers, heart-rate monitors, and body composition analytics-enabling personalized training, nutrition, and recovery for sustained top-level performance.

2. Rahul Dravid – Data: Conversation Starter

- **Focus:** Team Performance Improvement.
- **How Data Helps:** Initially hesitant about data, Dravid embraced it within a year, using analytics not for instructions but to initiate meaningful player conversations, gaining stronger buy-in through trust.

3. Indian Men's Hockey Team – Data-Driven Revival

- **Focus:** London Olympics 2012.
- **How Data Helps:** A review of the London 2012 Olympics highlighted a sharp contrast in hockey strategies: Germany made nearly 480 rolling substitutions, with players averaging just four minutes on the field, while India relied on only 240 substitutions and 5–6 players carrying most of the game. The insight was clear — Germany's dynamic rotations kept their play unpredictable and players fresh, whereas India's limited changes led to fatigue and reduced flexibility. This data-driven approach was key to their bronze medal at Tokyo 2020.



4. Neeraj Chopra – Optimizing the Golden Arm

- **Focus:** Biomechanics & injury prevention.
- **How Data Helps:** Chopra's preparation blends biomechanical analysis, motion capture, and high-speed video tools to perfect javelin release angles, throwing velocity, and strength conditioning. By tracking joint stress and recovery metrics, his team minimized injury risks — laying the foundation for his Tokyo 2020 Olympic gold medal and continued dominance on the world stage.



5. SportsMechanics – Sports Always App for Tactical Match-Ups

- **Focus:** Opposition Intelligence and Game Preparation.
- **How Data Helps:** The Sports Always app, developed in-house by the SportsMechanics, which is licensed to the Indian Cricket Team (men and women) and Mumbai Indians, is a specialized video analytics platform. It allows coaches and players to retrieve all footage of any batsman-bowler match-up across domestic and international cricket.
- **Example:** Typing "Batsman – Ramandeep Singh, Bowler – Jasprit Bumrah" instantly displays every instance of Singh facing Bumrah.
- **Impact:** This granular database equips Indian cricket players and MI players to study patterns, anticipate opposition tactics, and refine strategies, ensuring the team consistently enters matches with superior preparation and tactical clarity.



Case Study: Bhavani Devi – Harnessing Data and Technology to Redefine Fencing Performance

Abstract

This case study explores the pioneering journey of C.A. Bhavani Devi, India's first Olympic-qualified fencer, Bronze medal in Wuxi, China. Her innovative use of data-driven technologies in training and competition. Through physiological monitoring, biomechanics, neuro-assessments, and video analytics, Bhavani has transformed the way she prepares for high-intensity bouts. A defining example of her data-enabled success was her 2023 Asian Fencing Championships bronze medal in Georgia, where she defeated the then world No.1 Japanese fencer through carefully crafted, data-informed strategy. Her story underscores how technology and analytics are rapidly becoming indispensable in fencing, a sport defined by speed, precision, and tactical adaptability.

Background

Fencing is often described as “physical chess” – fencing requires sharp reflexes, strategic thinking, and precise control of distance and timing. Recently, technology has become a game-changer: helping athletes track readiness, improve movement efficiency, and analyze opponents' tactics more effectively.



Bhavani Devi stands at the forefront of this evolution. From her early training days with consumer-grade wearables like the Apple Watch, she has progressively adopted advanced platforms such as WHOOP. This tools, alongside video analysis and biomechanical sensors, form the backbone of her high-performance ecosystem.

Approach to Data Usage

- **Physiological Monitoring**

- Bhavani leverages cutting-edge wearables and testing protocols to closely monitor her body's internal feedback systems.
 - Apple Watch → WHOOP, reflects her increasing sophistication in monitoring tools.
 - Tracks sleep time, recovery indices, heart rate variability, and stress levels.
 - Uses blood markers, nutrition data, and neuro tests to assess readiness.
 - Data informs daily training intensity adjustments, minimizing overtraining risks and optimizing competition-day freshness.

- **Biomechanics and Agility Training**

- Through biomechanical assessments and motion sensors, Bhavani evaluates her:
 - Footwork patterns (distance coverage, reaction speed).
 - Explosiveness and agility during lunges.
 - Body alignment to optimize scoring angles and reduce wasted motion.
 - This granular feedback ensures that her fencing movements remain both technically efficient and energy conservative, crucial in long tournaments.

- **Video Analytics for Tactical Edge**

- Beyond physiology, opponent analysis plays a decisive role in fencing outcomes. Bhavani routinely dissects match footage of her competitors to map:
 - Preferred attack styles.
 - Defensive triggers.
 - Weaknesses under pressure.

- **Case Example: 2023 Asian Championships, Georgia**

- Bhavani faced the world No.1 Japanese fencer Misaki Emura, a formidable opponent with a history of dominating international circuits. Drawing upon video analytics, she and her team devised a novel tactical strategy:
 - Employ overspeed movement to disrupt rhythm.
 - Vary distance control by slowing down unpredictably.
 - Force the opponent into tactical uncertainty.
 - While the strategy was inherently risky, Bhavani committed fully. The result: she outmaneuvered her opponent and clinched a historic bronze medal, reinforcing the efficacy of data-informed tactics.

- **Integration of Recovery and Nutrition Data**

- Bhavani meticulously integrates diet logs, hydration levels, and pre/post-training body metrics to ensure her body aligns with the physiological demands of fencing. By aligning nutrition with recovery indices and energy expenditure data, she maximizes both physical readiness and mental sharpness.

Impact

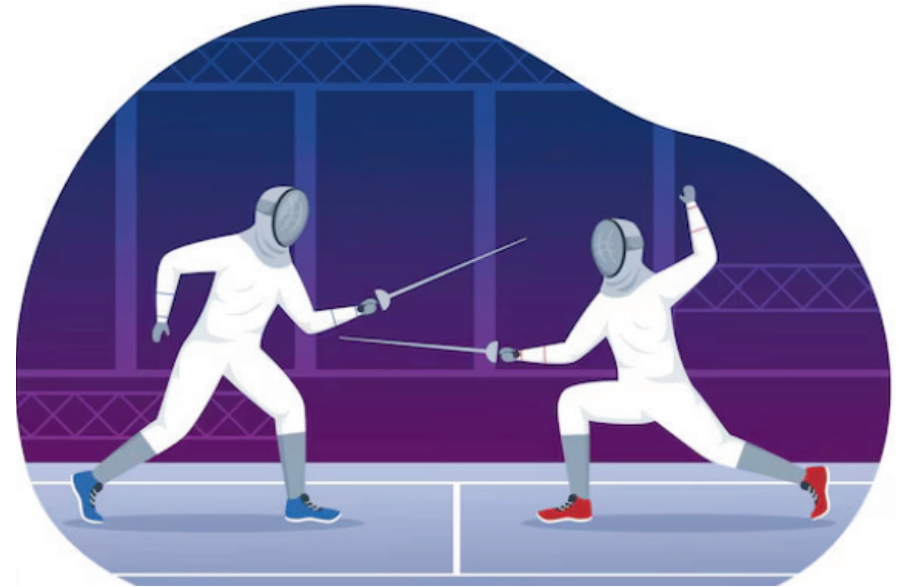
- Bhavani Devi's adoption of data and technology has yielded multifaceted benefits:
 - Physiological optimization: improved recovery cycles, injury prevention.
 - Tactical breakthroughs: victories against higher-ranked fencers via strategy.
 - Performance consistency: quantifiable training insights to sustain peak form.
 - Psychological readiness: confidence derived from evidence-based preparation.
 - Her achievements exemplify how quantitative data can translate into qualitative competitive edges in fencing.

Future Outlook

- Bhavani believes fencing will become increasingly tech-integrated:
 - Wearable sensors in practice to measure speed, distance, and reaction times in real time.
 - AI-driven video breakdowns to identify micro-patterns invisible to the naked eye.
 - Global benchmarking against athletes from Switzerland and the USA, who already employ extensive tech-based preparation.
 - According to her, as fencing is fundamentally a speed-and-distance game, technology will continue to evolve as a performance accelerator – making athletes faster, smarter, and more injury-resilient.

Conclusion

Bhavani Devi's journey illustrates how a blend of discipline, innovation, and data-driven decision-making can propel athletes beyond conventional boundaries. As the first Indian fencer to qualify for the Olympics, her success story is not only about breaking barriers but also about redefining preparation through data science. Her case serves as an instructive model for fencing federations, coaches, and athletes worldwide seeking to harness the power of technology for competitive advantage.



Approach to Data Usage



Physiological Monitoring

- Tracks sleep time, recovery, heart rate variability, and stress levels
- Uses blood markers, nutrition, and neuratests
- Informs training intensity, optimizing readiness



Biomechanics and Agility Training

Case Example



2023 Asian Championships, Georgia

Defeated world No:1 Japanese fencer

Integration of Recovery and Nutrition Data



- Tracks diet logs, hydration, body metrics
- Aligns nutrition with recovery and energy expenditure

Impact

- Physiological optimization
- Tactical breakthroughs
- Performance consistency
- Psychological readiness



“Innovation in technology tools and performance analysis can help us train smarter , compete better and elevate Indian Fencing on the global stage.”



Bhavani Devi

India's first Olympic-qualified fencer

Case Study: Leveraging Data for Performance Enhancement in Elite Taekwondo – The Journey of Latika Bhandari

Abstract

This case study examines the role of data-driven decision-making in the career of Latika Bhandari, one of India's leading Taekwondo athletes. It highlights how structured use of performance analytics, physiological monitoring, and opponent scouting has shaped her competitive strategies, improved technical execution, and enabled her to convert setbacks into victories. Through both qualitative insights and practical examples, this study demonstrates the transformative potential of data in elite combat sports.



Background

Taekwondo requires a sharp mix of explosiveness, strategy, and mental focus, where victories can hinge on split-second reactions or tactical shifts. In this intense setting, data has become a vital tool to sharpen performance and gain a competitive edge.

Latika Bhandari, representing India at multiple international championships, has consistently integrated data into her training and competition cycle. Her approach underscores how athletes can combine match analytics, biomechanical feedback, and physiological tracking to make informed performance decisions.

Approach to Data Usage

• Opponent Analysis

- Latika systematically reviews international Taekwondo ratings, scouting athletes she is likely to face in upcoming competitions. She complements numerical ratings with qualitative video analysis:
 - Breaking down YouTube videos of opponents.
 - Mapping strengths (e.g., most scoring kick, dominant leg, favorite kicks, defensive reflexes).
 - Identifying weaknesses (involves pinpointing gaps between blocks, areas where scores may be lost, and combinations that are predictable).
 - Creating pre-match strategies tailored to each competitor.
 - This combination of statistical and visual data equips her to step onto the mat with a tactically optimized plan.

• Match Recording and Feedback

- Latika's training sessions and competitive matches are recorded, and video playback serves as a diagnostic tool.
- Errors in timing, stance, and guard positioning are pinpointed.
- Coaches provide targeted drills based on observed mistakes.
- Incremental improvements are measured over time.
- This iterative loop ensures that performance growth is measurable, not anecdotal.

• Case Example: Overcoming a Chinese Opponent

- A defining moment in Latika's career illustrates the direct impact of data analysis.
- She faced Wei Xiao Jing of China twice—first at the World Taekwondo Championship 2017 and later at the Chuncheon Open Championship—losing both encounters despite scoring consistently. The paradox: she was landing points but conceding them simultaneously.
- Post-match, Latika and her coach conducted a detailed video breakdown. The analysis revealed:
 - Huang's significant height advantage.
 - Latika's failure to step in aggressively, leaving her vulnerable to counters.
 - Armed with this insight, Latika restructured her strategy for the next encounter:
 - Increased stepping to close distance.
 - Adjusted timing to prevent counter-scoring.
- **The result:** a decisive victory against the same opponent in the semi-final at president's cup, demonstrating how data converted repeated losses into a breakthrough win.

- **Physiological and Training Data**

- Given Taekwondo's weight-class nature, body metrics are critical. Latika integrates sports science data tracking into her daily routine:
 - Resting heart rate to monitor recovery.
 - Training load to prevent injuries and VO₂ max for endurance optimization.
 - Pre- and post-training body weight to manage hydration and weight category readiness.
 - Diet logs to maintain optimal energy balance during training and to manage weight.
 - This data-driven physiological monitoring reduces risks of overtraining, ensures compliance with competition weight categories, and optimizes match-day readiness.

Impact

- Latika's case demonstrates the multifaceted benefits of data in combat sports:
 - Tactical Precision: Tailored strategies against opponents.
 - Performance Improvement: Objective correction of technical errors.
 - Injury Prevention: Workload and recovery balance.
 - Competitive Edge: Smart preparation over sheer hard work.
- Her success story reflects a broader truth: "at the elite level, all athletes train hard—data enables them to train smart."

Future Outlook

- Latika emphasizes that the future of elite sport lies in data-enabled intelligence:
 - Real-time analytics during matches for tactical calls.
 - Wearable tech for continuous monitoring.
 - AI-assisted video breakdown for instant feedback.
 - Predictive injury models to extend athlete longevity.
 - She sees technology not as a replacement for hard work but as a force multiplier, compressing learning cycles and enhancing tactical adaptability.

Conclusion

Latika Bhandari's journey illustrates how data transforms raw effort into measurable, strategic, and winning performance. Her experiences—from opponent scouting to biometric monitoring—provide a blueprint for athletes across combat sports. This case underscores the growing necessity for data literacy in athletes' careers and offers valuable insights for coaches, sports scientists, and policy-makers working at the intersection of sport and technology.

Abstract

Taekwondo, as a combat sport demands a unique blend of explosiveness, factual intelligence, physiological control and mental preparation.

Background

Latika systematically Reviews international Taekwondo ratings, scouting athletes she is likely to face in upcoming competition cycle.

Approach to Data Usage

1. Opponent Analysis



Review International/Taekwondo rating, scouting opponents



Breaking down YouTube Videos

2. Match recording and Feedback



Training Sessions and matches



Coaches provide drills based on Coaches

3. Case Example: Overcoming a Chinese Opponent



Acquired a Victory Against a chinese opponent at the semi

4. Constant Monitoring



Wearable tech for Continuous Monitoring

5. Injury Prevention



Predictive injury models



“In India Taekwondo traditionally viewed age 25 as the cutoff for peak performance, leading many athletes to retire by then. However, with advancements in sports science and technology, I broke that trend and became the first athlete to compete effectively at age 31.”



Latika Bhandari

India's No. 1 Ranked Taekwondo Athlete
in the 53kg weight category

Key Takeaways for Emerging Athletes and Teams (Indian Context)

- **Start Small, But Start with Data**
 - You don't need world-class labs to benefit from analytics. Even basic wearable trackers, GPS vests, or training apps can provide valuable insights into speed, workload, and recovery.
 - *Lesson:* Begin with simple tools, track consistently, and build a habit of reviewing your own data.
- **Consistency Matters More Than Complexity**
 - What sets athletes like Virat Kohli apart is not just access to high-tech data, but the discipline to track fitness, nutrition, and recovery daily.
 - *Lesson:* Consistency in measurement and review builds long-term improvement.
- **Leverage Video for Self-Analysis**
 - From PV Sindhu to the Mumbai Indians, video analysis has been a game-changer for identifying strengths and weaknesses.
 - *Lesson:* Record your training sessions and matches; review them with coaches or peers to find small but impactful improvements.
- **Prioritize Injury Prevention**
 - Data-driven insights helped Neeraj Chopra and the Indian hockey team manage workloads, avoid overtraining, and extend performance longevity.
 - *Lesson:* Use data to listen to your body — prevention is always better than costly rehabilitation.
- **Combine Intuition with Insights**
 - Champions like Harinder Pal Singh Sandhu remind us that while core skills are critical, opponent data and tactical analysis provide the edge in high-stakes competition.
 - *Lesson:* Trust your instincts, but strengthen them with evidence from data.
- **Focus on Recovery as Much as Training**
 - Elite athletes track sleep, hydration, and recovery cycles as carefully as their workouts.
 - *Lesson:* Plan recovery scientifically — a rested body delivers better results than an overtrained one.
- **Data Builds Confidence**
 - Whether it's a junior athlete reviewing sprint times or MI's professionals analyzing batter-bowler match-ups, data provides clarity and confidence before competition.
 - *Lesson:* Use data not just to improve performance, but also to reduce self-doubt and anxiety before a game.

"By balancing core skills with thorough study of opponents' patterns, we harnessed technology's power recognizing it as an indispensable resource for advancing our sport and competitive edge."



Harinder Pal Singh Sandhu

Asian Games Gold Medalist in Squash (2014 & 2022)

Data-Backed Decision Making by Sports Federations and Associations: Current Scenario and Future



Data-Backed Decision Making by Sports Federations and Associations: Current Scenario and Future

In today's sporting landscape, federations and associations are no longer mere custodians of rules and competitions — they are data-driven enterprises shaping the future of sport. Globally, governing bodies like FIFA, ICC, IOC, and WADA have demonstrated how structured use of data can refine scheduling, enhance performance, enforce fairness, safeguard integrity, and even measure the environmental footprint of mega-events.

Where Data is Driving Impact Globally

- **Talent Identification** – Data platforms pinpoint rising athletes early, enabling federations to channel resources effectively.
- **Competition Management** – FIFA uses data to structure tournament schedules, host city allocations, and player registrations.
- **Rule Enforcement** – The ICC leverages ball-tracking technology like Hawk-Eye to bring precision and trust to umpiring decisions.
- **Anti-Doping** – WADA's Athlete Biological Passport uses longitudinal data to flag anomalies and potential doping cases.
- **Performance Analysis** – The NBA's tracking systems supply coaches with granular player movement and tactical data.

- **Athlete Welfare** – The NBPA employs wearables to monitor workload, recovery, and injury risk.
- **Governance and Transparency** – The IOC publishes detailed data-led reports to assure financial accountability.
- **Safety and Security** – The Olympics deploy real-time crowd data from sensors and surveillance to mitigate risks.
- **Strategic Planning & Sustainability** – FIFA uses grassroots participation data to expand youth football, while UNFCCC frameworks guide carbon measurement at global events.



India's Emerging Data Story

Closer home, Indian federations are beginning to follow suit, though adoption remains uneven. Data use is strongest in talent identification, competition planning, and elite team preparation, but is gradually expanding into fan engagement, sponsorship optimization, and grassroots development.

1. Karnataka State Cricket Association (KSCA)

- **Focus Areas:** Player database, operational automation, fan engagement.
- **Key Innovation:** Proprietary data management platform (25,000+ player records) for transparent talent tracking.
- **Impact:** Faster, unbiased selection decisions; automated umpire appointments; real-time updates via the KSCA Live App.
- **Future Roadmap:** Video analytics for local matches, biometric data for elite players, social media analytics.

2. Squash Rackets Federation of India (SRFI)

- **Focus Areas:** Talent identification, event growth, LTDPs.
- **Key Innovation:** Early adoption of athlete profiling (2013) using demographic and performance data.
- **Impact:** Expansion of sanctioned events from 4 in 2014 to 65+ today; transparent selection; stronger global performance (56+ medals, including the 2014 Commonwealth Games gold).
- **Future Roadmap:** Deepening use of data science in athlete development and enhanced tournament preparation for top players.



3. All India Football Federation (AIFF)

- **Focus Areas:** Player workload management, injury prevention.
- **Key Innovation:** GPS trackers and accelerometers used in ISL to monitor sprint intensity, jumps, and stops.
- **Impact:** Personalized training programs and reduced injury risk.



4. Board of Control for Cricket in India (BCCI) & IPL

- **Focus Areas:** Tactical insights, fan monetization.
- **Key Innovation:** Partnerships with SportsMechanics and big-data platforms for match analysis and predictive models.
- **Impact:** Enhanced player selection, injury prevention, and commercial growth via analytics in ticketing, marketing, and merchandising.



5. Gujarat State Football Association (GSFA)

- **Focus Areas:** Fan experience, grassroots leagues.
- **Key Innovation:** Collaboration with Footrax in Gujarat Super League to provide real-time tracking, sprint data, and heat maps.
- **Impact:** More immersive fan broadcasts, data-backed grassroots development.



6. Table Tennis Federation of India

- **Focus Areas:** Coaching, tactical preparation, broadcast innovation.
- **Key Innovation:** Adoption of AI-powered analytics platforms like Stupa Sports Analytics.
- **Impact:** Enhanced tactical analysis for coaches, immersive experiences for fans, and global-standard digital coverage.



7. SAI's appointment of SportsMechanics since London Olympics 2012

- **Focus Areas:** Sports Operations, Sports Analytics and High Performance, Fan Engagement and Community Building.
- **Key Innovation:** AI-powered digital platform leveraging our state-of-the-art AI Platform to modernize every layer of sports operations.
- **Impact:** Robust Governance & Compliance for a sport governing body aiding in Operational Efficiency & Transparency.



Case Study: Yogasana Federation – Data as the Backbone of a New Sporting Discipline

Introduction

Among the youngest recognised sports federations in India, Yogasana Federation has emerged as a trailblazer. Supported by the Ministry of Ayush and the Sports Authority of India (SAI), the Yogasana Federation has built an entirely new framework for transforming yoga from a subjective practice into a competitive sport governed by objectivity, transparency, and data.

The Federation's philosophy is simple yet powerful:
"Whatever can be measured, can be improved."



The Challenge: From Subjectivity to Objectivity

Traditionally, yoga asanas have been judged by visible posture, grace, and flow—highly reliant on subjective interpretations by judges. This created challenges:

- Disputes over scoring
- Bias risks in judging attire, expression, and posture
- Lack of standardisation across districts, states, and nationals
- Difficulties in talent identification and progression

To establish Yogasana as a credible competitive sport, the Federation needed a technical, data-driven grading system.

The Solution: Building a Data-Driven Federation

The Federation conceptualised and implemented a digital scoring and grading system—developed in-house and later validated by the World Yogasana Technical Committee.

Key Innovations

- **Scoring Transparency**
 - AI-assisted evaluation of posture, balance, and precision.
 - Codification of softer aspects (attire, expression, presentation) to minimise subjectivity.
 - Instant error detection through video-assisted review.

- **Points Gradation System**

- Microsecond-level performance tracking.
- Real-time athlete and coach ranking at district, state, and national levels.
- Clear visibility of “peaking” vs. “non-peaking” phases.

- **Code of Points**

- Developed by the Technical Committee of World Yogasana.
- Dispute resolution transformed into an objective, data-backed process.

- **Technology-Enhanced Competition**

- High-definition video recording for transparency and training feedback.
- Integration of CGI data for perfect posture analysis.
- Athlete databases cleaned and refined for accurate performance tracking.



The Impact

The data-driven system has delivered measurable benefits:

- Fair & Objective Competitions – Standardised judging across 700+ district-level and multiple national-level events.
- Athlete Development – Coaches and players can monitor micro-level improvements.
- Credibility Boost – Reduced disputes and enhanced trust among athletes, parents, and sponsors.
- Audience Engagement – Transparent scoring and objective rankings make the sport more broadcast-friendly.
- Growth of the Federation – Positioned Yogasana as a modern sport fit for international recognition

The Next Frontier

The Federation envisions a future where data is the lifeblood of Yogasana, extending beyond scoring:

- Athlete Performance Documentation – Building a historical archive for talent scouting and media storytelling.
- Broadcast Integration – Enhancing viewer experience with live scoring and performance analytics.
- Injury Management & Prevention – Using predictive analytics for prognosis, diagnosis, and safer training.
- Research & Wellness Evidence – Leveraging performance data to validate and promote the physical and mental benefits of yoga as a sport.

Conclusion

Yogasana's evolution from a subjective art form to an objective, data-driven competitive sport is a landmark case of how technology, governance, and tradition can converge. By embedding transparency and precision into its DNA, the Federation has not only earned recognition but also set the stage for **India to lead in global yogasana sports.**



Case Study: IRFU's Digital Leap – Building a Tech-First Future for Indian Rugby

Abstract

In 2024, the Indian Rugby Football Union (IRFU) launched a transformative digital registration and competition management platform—marking a new era in governance, athlete management, and performance tracking. By creating a single-window digital ecosystem for players, coaches, referees, clubs, districts, and states, IRFU is bridging long-standing structural gaps while preparing for a data-driven future. This initiative not only streamlines administrative processes but also creates a strategic foundation for talent development and elite performance measurement.



Setting the Scene:

Rugby in India has always faced the twin challenge of visibility and structure. While the sport has grown steadily at the grassroots, its administration often struggled with scattered records, inconsistent competition data, and limited pathways for talent recognition.

“Without reliable data, it was difficult to answer fundamental questions—

- How many active players do we have?
- Which districts are growing fastest?
- Who are the next generation of elite athletes?” notes an IRFU official.

In response, IRFU chose not to scale its traditional systems but to leapfrog directly into a digital-first model.

The Intervention: A Digital Backbone for Rugby

- One-Stop Digital Registration System
 - Covers all stakeholders: players, coaches, referees, clubs, districts, state associations.
 - Individual profiles with trackable history of performances, certifications, and roles.
- End-to-End Digital Competition Management
 - Online team list submissions.
 - Live scoring and result updates.
 - Instant issuance of participation and merit certificates.
- Future-Ready Integration
 - District and state competitions will feed directly into the national database.
 - A bottom-up data pipeline ensures no player is left undocumented.

Sidebar Insight: Why This Matters

- Governance Transparency – A single source of truth for all rugby activities.
- Athlete Pathways – Clear records that help identify and nurture talent.
- Operational Efficiency – Reduced paperwork, faster processes, fewer errors.
- Strategic Planning – Enables data-backed decisions on funding and development.

The Impact So Far

- Governance Upgrade: State bodies are gradually aligning with national processes, creating uniformity.
- Athlete Confidence: Players can now view their historical records—building trust and motivation.
- International Benchmarking: Digital systems make IRFU’s operations more comparable with global rugby unions.

“For the first time, a young player in a district tournament knows that their performance is officially recorded and visible at the national level.”
– Stakeholder Comment

Looking Ahead: Beyond Governance, Into Performance

IRFU is not stopping at administration. The next phase focuses on elite athlete monitoring tools, including:

- Wearable performance trackers.
- Video-based analytics.
- Physiological monitoring for injury prevention and recovery.

This two-layer strategy—grassroots governance plus elite performance—ensures that rugby’s ecosystem in India is future-proof and competitive.

Strategic Takeaways

- Leapfrogging Model: Instead of incremental reforms, IRFU jumped directly to a digital-first governance system.
- Scalable Framework: The system is designed to grow with the sport—from schools to the international stage.
- Replicable Blueprint: Other federations can adapt this model for their own sports ecosystems.

Conclusion

The IRFU's 2024 digitalisation initiative is more than just an administrative reform—it is a vision statement for Indian rugby. By combining governance efficiency with performance science, the Union is shaping a future where data drives decisions, talent pathways are transparent, and India's rugby ecosystem can compete on the global stage.

This case stands as a reminder that technology, when used strategically, is not a support tool but a growth accelerator—especially for sports striving to establish their presence in competitive landscapes.



For Indian sports federations, the next frontier is scaling from pilots to institutionalized data strategies. To achieve this, federations must:

- As India transitions from a data-aware ecosystem to a truly data-driven sports culture, federations will not just manage competitions – they will become innovation hubs that shape the next generation of athletes, fans, and commercial opportunities.



“Data is no longer just a tool, its the revolution in motion! When combined with AI, it becomes the most powerful force shaping the future of decision-making, innovation and human potential.”



Harish Prasad

**Ex – National Development Officer,
Squash Rackets Federation of India**

Data-Backed Decision Making in Fan Engagement & Sponsorship



Data-Backed Decision Making in Fan Engagement & Sponsorship

In today's sports industry, fans are not just spectators — they are active participants in a digital-first ecosystem. Every ticket purchased, every tweet liked, every mobile app click, and every replay streamed leaves behind a data footprint. Harnessing this information has allowed sports franchises and sponsors to personalize fan experiences, drive deeper loyalty, and unlock new revenue streams.

The fusion of data, technology, and creativity is redefining how teams engage with their fans and how sponsors measure impact. In India, where cricket dominates but other sports like kabaddi, football, and badminton are rapidly gaining traction, fan analytics is becoming a critical differentiator.



• Personalized Content & Marketing

- What it is: Delivering content tailored to each fan's preferences — newsletters, push notifications, highlights, merchandise offers.
- Example: An IPL franchise like Chennai Super Kings (CSK) tailors digital pushes around its most loyal fan bases in Tamil Nadu, offering Tamil commentary, exclusive local events, and regional merchandise.
- Impact: Builds emotional connection, drives click-through rates, and boosts merchandise conversion.

• Email & CRM Segmentation

- **What it is:** Segmenting fan bases based on demographics, engagement levels, or purchase history.
- **Example:** Bengaluru FC uses fan data from ticketing and email lists to send birthday offers, matchday reminders, and discount codes to season ticket holders.
- **Impact:** Higher open rates, more personalized communication, increased fan stickiness.

• Mobile Apps & Immersive Digital Touchpoints

- **What it is:** Fan apps that combine exclusive content, ticketing, fantasy leagues, and live interactions.
- **Example:** Mumbai Indians' "Sports Always" app lets players analyze opponents, but its fan-facing modules also track engagement, purchases, and offer exclusive behind-the-scenes videos.
- **Impact:** Fans spend more time within the franchise's ecosystem, creating monetizable engagement data.

- **Predictive Analytics for Attendance & Ticketing**

- **What it is:** Using historical sales, geolocation, and fan spending patterns to forecast attendance and dynamically price tickets.
- **Example:** DC introduced tiered ticket pricing that fluctuates with opponent strength, demand surges, and day of the week.
- **Impact:** Maximized stadium revenues, reduced unsold capacity, and improved seat-fill ratios.

- **Sponsorship ROI & Brand Partnerships**

- **What it is:** Sponsors today demand data-backed evidence of visibility and engagement.
- **Example:** PKL segments sponsorship exposure by region, showing sponsors exactly how many fans interacted with their brand in tier-2 and tier-3 cities.
- **Global Best Practice:** The NBA's Timberwolves–Fitbit partnership tied sponsorship metrics to fan fitness challenges, linking sponsor activation to measurable engagement.
- **Impact:** Data-backed valuations make sponsorship deals more lucrative and transparent, creating stronger long-term partnerships.

- **In-Stadium Engagement & Experience**

- **What it is:** Real-time fan engagement blends physical and digital match experiences.
- **Example:** IPL venues use push notifications for offers, contests, and meet-and-greets, with fan profiling by seat location for hyper-personalized engagement.
- **Global Benchmark:** NBA and NHL use facial recognition to display fan lookalikes of celebrities on the jumbotron.
- **Impact:** Fans feel seen and valued, enhancing retention and repeat attendance.

- **Virtual Fan Communities & Extended Reach**

- **What it is:** Online fan clubs, virtual watch parties, and gamified engagement on OTT platforms.
- **Example:** JioCinema's IPL coverage created interactive fan leaderboards, allowing users to predict match outcomes and win rewards, thereby merging OTT viewership with gamification.
- **Impact:** Expanded engagement beyond stadiums, growing new audiences nationally and globally.

- **Fan Data Monetisation**

- **What it is:** Structured use of fan insights for revenue streams beyond ticketing — e-commerce, fantasy leagues, OTT bundles, targeted sponsor activations.
- **Example:** CSK and MI monetize fan data by launching exclusive merchandise drops, early access passes, and sponsor-led activations (credit card offers, OTT bundles).
- **Impact:** Converts engagement data into direct commercial value while keeping fans invested in the ecosystem.



Survey Insights (India Context)

From our research questionnaire (2025):

- Top Priority: Fan engagement ranked as one of the most important areas for applying data.
- Tools Used: CRM systems, in-house apps, and social media analytics were the most cited technologies.
- Challenge: Respondents highlighted data inconsistency and lack of integration between platforms as a roadblock.
- Future Outlook: Almost all agreed fan personalization and data-backed sponsorship ROI will be the biggest growth drivers in the next 5 years.



Case Study :

Fanisko – a one-stop fan engagement platform for sports brands

Fanisko is a sports-tech company working with sports teams and organizations and offering services like web and mobile app development, data analytics, Artificial Intelligence/Machine Learning, Augmented Reality, Mixed Reality and UI/UX. Their clientele includes Star Sports – Pro Kabaddi League, Chennai Super Kings (IPL), Punjab Kings (IPL), Chennaiyan FC (ISL), ATK Mohun Bagan FC (ISL), Malaysia Cricket Association, Tech Mahindra Sports Tech, Sportsradar, etc.

Data-enabled mobile app for Chennaiyin FC:

A prominent professional football club in India participating in the Indian Super League (ISL), Chennaiyin FC partnered with Fanisko to develop a mobile app focused on enhancing fan engagement. The app featured live-match updates, news, videos, gamification, rewards, personalization, in-app community, and data-driven insights. Following a successful launch, Chennaiyin FC utilized the data gleaned from the app to inform their decision-making processes, ultimately enhancing their brand perception.

Star Sports Pro Kabaddi League (PKL) Fan Interaction and Social Media promotion:

A popular Kabaddi league in India, PKL, was launched by Star Sports, a leading broadcaster, in 2014. Partnering with Fanisko, they created a Social Augmented Reality (AR) experience, where fans can build their own Kabaddi avatar and share it on social media. As a result, it got 2.5Mn+ impressions in just 2 weeks, 250k+ open rate, and 50k+ shares, for an emerging league.

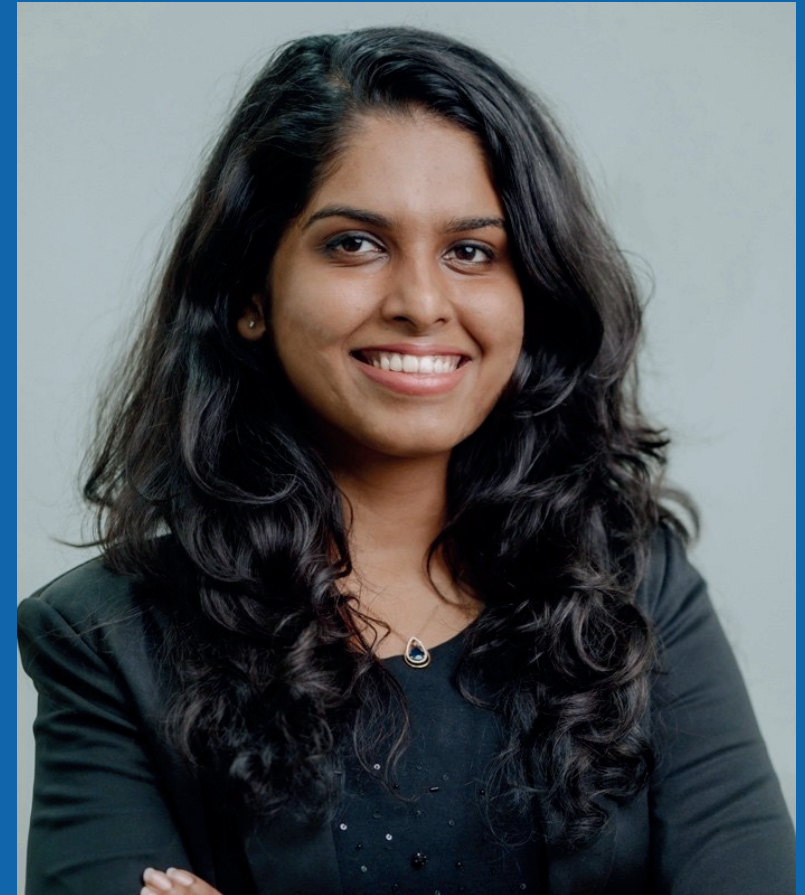


Key Takeaways

Fan engagement and sponsorship are no longer guesswork. They are science-led, data-driven, and hyper-personalized. The franchises and leagues that can intelligently use data to understand their fans — and transparently demonstrate this value to sponsors — will outperform rivals commercially and ensure their place in the hearts (and wallets) of fans.



“Data isn't just numbers – it's the engine behind how we scale sports, discover talent, and connect fans to the game like never before.”



Shubhangi Gupta

Co-Founder, Sportvot

Data-Based Decision Making in the Business of Sports



Data-Based Decision Making in the Business of Sports

The business of sports is no longer powered only by passion and instinct. Today, data and analytics are the foundation of strategic and operational choices across leagues, franchises, sponsors, broadcasters, and sports-tech companies. By collecting, analyzing, and applying insights, organizations can improve performance, deepen fan engagement, optimize resources, and unlock new revenue streams.

Key Applications of Data in Sports Business

- **Player Performance & Contracts**
 - Analytics evaluate not only match statistics but also injury risk, fitness trends, and tactical contribution, influencing recruitment and retention.
 - Example: IPL franchises like Rajasthan Royals use hidden metrics (strike rate under pressure, bowling economy in death overs) for scouting uncapped players.
- **Fan Engagement & Personalization**
 - Fan data from ticketing, apps, and social media helps customize campaigns, loyalty programs, and in-stadium experiences.
 - Survey Insight: Over 80% of respondents rated data's importance at 7 or higher (out of 10), citing fan engagement as a priority.
 - Example: IPL and PKL franchises use region-specific campaigns based on viewership heatmaps.
- **Ticket Pricing & Sales Optimization**
 - Dynamic pricing models, based on demand, demographics, and timing, maximize stadium revenues.
 - Example: BCCI and KSCA use ticketing data to manage crowd flow and optimize ticket tiers at venues like Chinnaswamy Stadium.
- **Sponsorship & ROI Measurement**
 - Sponsorships are now negotiated based on digital impressions, engagement analytics, and ROI tracking, not just legacy brand fit.
 - Survey Insight: Respondents highlighted data-driven sponsorship ROI as a future growth driver.
 - Example: PKL's sponsorship deals were backed by regional TV and OTT audience analytics, ensuring brand exposure in tier-2 cities.
- **In-Game Strategy & Real-Time Insights**
 - Coaches use live data to adjust lineups, substitutions, and tactical choices.
 - Example: Mumbai Indians' Sports Always app provides batter-bowler match-up videos to refine game-day strategy.
- **Player Health & Injury Prevention**
 - Wearables and biometrics feed into workload monitoring systems.
 - Survey Insight: Respondents flagged athlete performance tracking as a high-impact use case.
 - Example: Indian hockey and cricket teams use GPS trackers to measure sprint loads, preventing injuries.

- **Broadcast & Digital Innovation**

- Streaming platforms deploy consumption analytics to drive innovations like multi-camera feeds and interactive scorecards.
- Example: JioCinema's IPL coverage used viewer heatmaps to customize commentary in regional languages.

- **Operational Efficiency**

- Data streamlines venue management, staffing, and logistics.
- Survey Insight: Several respondents noted data centralization as key to reducing duplication and improving efficiency.

- **Market Expansion & League Development**

- Data identifies underserved geographies and new sporting opportunities.
- Example: The Women's Premier League (WPL) launch was preceded by market research into urban female viewership and corporate sponsorship appetite.

- **Regulatory Compliance & Governance**

- Data is used to track salary caps, contracts, and financial transparency in leagues and federations.
- Example: IOC and BCCI publish annual reports using structured financial and compliance data.

Insights from the Research Survey

The research questionnaire (July 2025) highlighted critical realities in the Indian context:

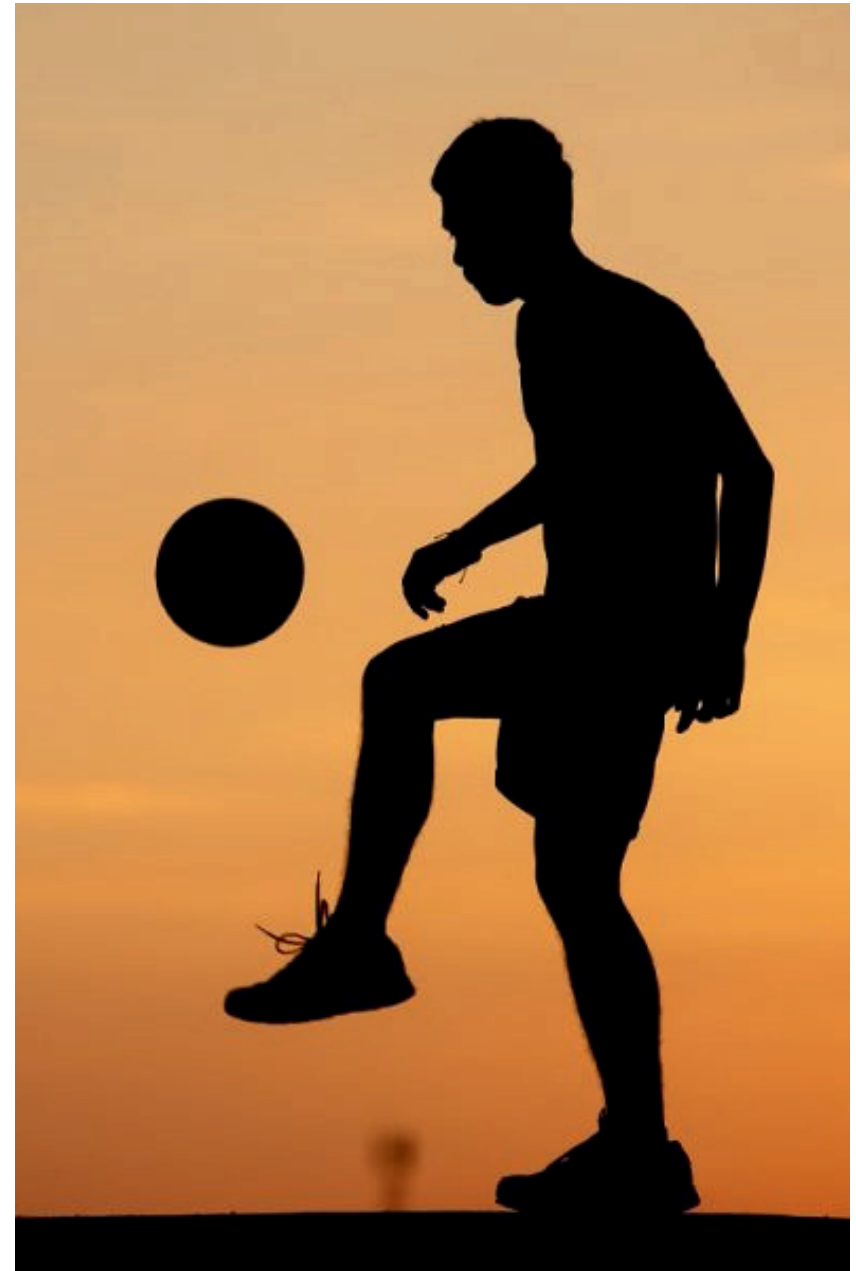
- **High Importance:** Average rating of 8/10 on the importance of data-driven decision making.
- **Challenges:** Respondents cited data inconsistency, accuracy, and lack of resources as key hurdles.
- **Current Data Types:** Most organizations work with customer engagement, operational, and financial data.
- **Future Role:** Respondents see data as "critical" and "central to growth and strategy" for the industry.
- **Investment:** Some plan 10% of revenue allocation, while others already dedicate >30% of income to technology upgrades.
- **Tools:** Python, Power BI, in-house applications, and survey platforms (Google Forms, Typeform) were most cited.



Challenges with Data from Survey Respondents - Word Cloud

The insights from Technology Usage in Sports Data Collection and Analysis are as follow:

- **Hybrid Data Collection:** Indian sports organizations use a mix of manual methods, surveys (Google Forms, Typeform), and in-house applications, balancing authenticity with efficiency.
- **Growing Analytics Adoption:** Tools like Python, Power BI, MySQL, MongoDB, and AI platforms (ChatGPT, OpenAI) are increasingly used for performance and operational analysis.
- **Diverse Data Sources:** Data is sourced from athlete interviews, league websites, secondary databases, and media platforms, reflecting a fragmented but rich ecosystem.
- **Operational Pragmatism:** Teams prioritize practical, accessible tools (Excel, Google Sheets) for day-to-day work, with advanced analytics often limited to elite or professional levels.
- **Emerging Trends:** There is a shift towards data visualization, AI-driven insights, and integrated platforms, enabling better storytelling, performance intelligence, and decision-making.



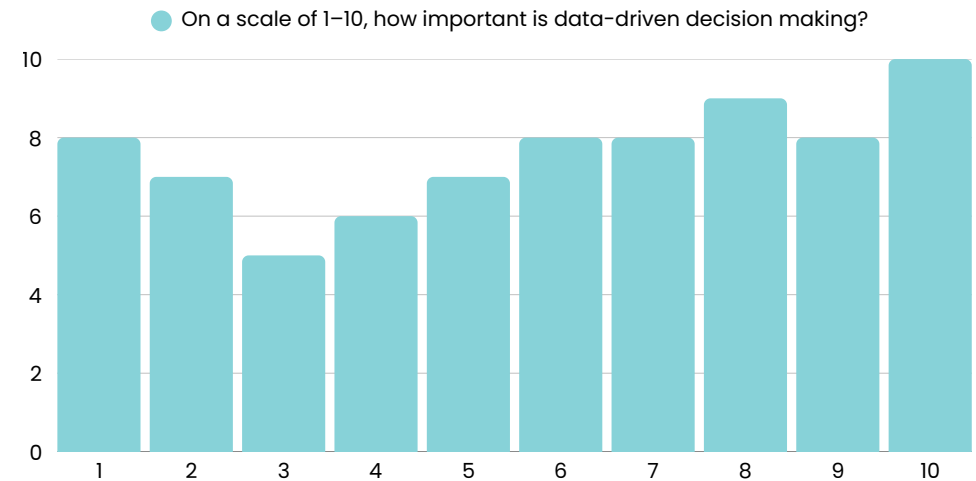
Importance of Data-Driven Decision Making

The survey shows that most stakeholders rate data-driven decision-making at 7 or higher (out of 10).

This means that maximum stakeholders recognize the importance of using data in strategy and operations, whether it's for:

- Player performance analysis
- Fan engagement
- Revenue optimization
- Event operations & logistics

Relevance: This highlights a growing cultural shift — stakeholders understand that future competitiveness in sports will depend on adopting data-backed approaches.

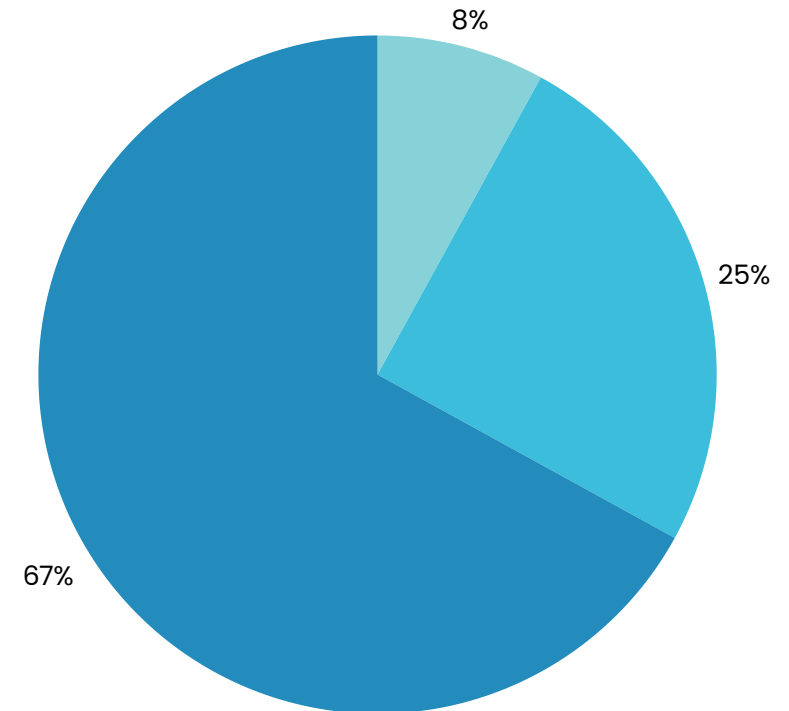


Shows most stakeholders rating it 7+ (indicating high importance).

Planned Technology Investment

- 67% of organizations plan to spend >30% of their income on technology upgrades. 25% plan 10–30%, and 8% plan <10%.
- This shows that sports organisations are committed to investing heavily in digital tools, analytics platforms and AI-powered solutions.
- The future scenario will likely involve real-time data analytics, fan behavior modeling, injury prediction, and financial forecasting.
- **Relevance:** The strong intent to invest indicates that federations are not just recognizing the value of data — they are also preparing to build the infrastructure to support it. This is a major step towards professionalization and global competitiveness in sports domain

Planned Technology Investment



Visualizing % of organizations planning <10%, 10–30%, >30% of income towards tech upgrades.

"Data is not merely a tool but the foundation upon which success is built in modern sports. The journey to excellence demands early and consistent data utilization—collecting, cleaning, and structuring information methodically to unearth champions and foster high performance from the grassroots to the elite level."



Gaurav Sundararaman

Cricket Analyst, SRH

Legal & Ethical Considerations in Sports Data Management



Legal & Ethical Considerations

As sports organizations increasingly rely on data, it is vital to address the legal and ethical dimensions of how this information is collected, stored, and used. The sports industry deals with highly sensitive data — from biometric details of athletes to personal information of millions of fans. Mismanagement or misuse can lead to serious risks, including privacy breaches, reputational damage, and regulatory penalties.

- **Data Privacy and Protection**

- Issue: Athlete biometric data (e.g., heart rate, GPS, recovery metrics) and fan personal data (e.g., ticketing history, location tracking) are highly sensitive.
- Legal Context in India: The Digital Personal Data Protection Act, 2023 (DPDP Act) sets clear guidelines on data consent, storage, and usage. Sports federations, leagues, and franchises must align with this framework.

- **Informed Consent and Athlete Rights**

- Issue: Wearables, video analysis, and AI tools generate continuous streams of player data. Who owns this data — the athlete, the team, or the federation?
- Best Practice: Athletes should provide explicit consent before their biometric data is used, especially in commercial agreements.

- **Sponsorship & Commercial Use of Data**

- Issue: Fan data is increasingly monetised for targeted sponsorships and advertising. While this creates value, it risks alienating fans if perceived as exploitative.
- Ethical Consideration: Transparency in how data is shared with sponsors, and allowing fans to opt-in for marketing communications, is crucial for trust.

- **Safeguarding Minors**

- Issue: Many fans and athletes are minors, especially in grassroots programs. Collecting and using their data requires extra safeguards.
- Legal Context: India's child data protection norms under the DPDP Act prohibit profiling and targeted advertising to children without parental consent.

- **Integrity and Fair Play**

- Issue: Data misuse (e.g., hacking of team strategies, betting-related exploitation) could compromise the fairness of competition.
- Best Practice: Strong cybersecurity, controlled access, and independent oversight can mitigate risks.
- The Bottom Line: Legal compliance is not enough. Sports organizations must embrace ethical responsibility, ensuring data is used in ways that protect athletes, respect fans, and uphold the integrity of the sport.

Conclusion & Recommendations

The journey of Indian sports is at an inflection point. While the global industry has already embraced the data revolution, India is still in the early stages — experimenting with analytics in pockets, but yet to fully embed it across federations, franchises, and athlete development pathways.

Our research, combined with case studies, reveals a consistent theme: data is no longer optional; it is foundational.

Key Recommendations

- **Build Centralized Data Ecosystems**

- Federations and franchises should invest in centralized platforms that consolidate athlete, fan, and operational data. This reduces duplication and improves accuracy.

- **Invest in Skills and Capacity**

- Beyond technology, the sports sector must nurture data analysts, performance scientists, and digital marketers who can translate data into actionable insights.

- **Ensure Legal & Ethical Compliance**

- Adopt global best practices in data privacy, consent, and transparency. Establish athlete data charters to define ownership and usage rights.

- **Leverage Indian Innovation**

- Encourage partnerships with Indian sports-tech startups (like Stupa Analytics, SportsMechanics, and Footrax) to drive cost-effective and contextualized solutions.

- **Expand Use Beyond Cricket**

- While cricket is ahead, federations in football, kabaddi, athletics, and hockey must integrate analytics into talent pipelines, fan engagement, and revenue planning.



Closing Thought

The future of Indian sports will not be defined by instinct alone. It will be shaped by those who can blend tradition with technology, passion with precision, and instinct with insight.

- For athletes, this means smarter preparation
- For federations, it means transparent governance
- For fans, it means more immersive experiences
- For businesses, it means new avenues of growth

In essence, **data is the new playbook of sports**. Those who adopt it early will not only win on the field but also dominate off it.



About SPORTSCOM

SPORTSCOM is India's premier nonprofit, apex industry body, dedicated to advancing the business of sporting goods manufacturers and sports-sector service providers. It is incubated by Confederation of Indian Industry. Our mission is to empower members—ranging from manufacturers and infrastructure developers to service providers and media stakeholders—so they can compete on a truly global scale.

Our Purpose and Values

- Champion Industry Standards
 - We advocate for elevated quality and cost competitiveness across India's sports industry – relative to global benchmarks.
- Foster a Collaborative Ecosystem
 - Through our inclusive platform, we unite manufacturers, developers, service providers, and media stakeholders to drive research-based advocacy and innovation.
- Build Capacity & Knowledge
 - As a knowledge hub, SPORTSCOM empowers industry players with best practices, expert insights, and trend analyses.
- Promote Sports Culture
 - We champion mainstream fitness and sports in schools, nurture home-grown talent, and raise awareness across communities.

For More Information

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Why It Matters

In today's fast-evolving sports landscape, SPORTSCOM plays a pivotal role by:

- Enhancing quality, innovation, and global market reach for sports-goods stakeholders.
- Bridging the gap between industry, government, and academia to drive meaningful change.
- Nurturing the next generation of athletes, entrepreneurs, and industry leaders.
- Building a sports ecosystem that's inclusive, competitive, and growth-oriented.



About ColLearn Sports

ColLearn is an ed-tech platform offering live, mentor-led online courses in non-traditional careers in sports. With programs like Sports Analytics, Sports Management, Commentary, Journalism, Coaching and Umpiring, ColLearn connects learners with industry experts through its “Learning from the Masters” approach, blending practical training and real-world exposure.

ColLearn is amongst the first sports education companies accredited by NSDC (National Skill Development Corporation) and is backed by Google Accelerators, selected among the Top 20 Startups in India for creating an impact. It is also incubated by IIM Bangalore NSRCEL and associated with IIT Madras Pravartak.

ColLearn students are now working with 100+ leading sports organizations, teams, and companies, including Rajasthan Royals, Kolkata Knight Riders, Delhi Capitals, East Bengal FC, ESPN, Cricbuzz, The Indian Express, Sports Mechanics, and Sports for All, as well as world-class academies such as the Bhaichung Bhutia Football School and the Dravid-Padukone Centre for Sports Excellence, showcasing the platform’s strong industry impact and career pathways.



Amongst the First sports education companies to get NSDC (National Skill Development Corp.) accreditation under Ministry of Skilling and Employment under Government of India



National Winner of Startup Maharathi Competition under Startup Mahakumbh by Central Government



Selected as Sports Education Partner by Infosys for training 3000 students under SpringBoard (Pilot for 300 started



TIE Women Global Pitch Competition 2023 Chapter Level Winner – 2nd Runner Up



Winner of Elevate 2024-25 – Karnataka Government Competition



Top Performer – IIMB’s NSRCEL Women Startup Program Cohort 4, 2024 (out of 4K startups)



Launched one of its kind Sports Management Program in association with IIT Madras Pravartak



Proud Collaboration with ARMY Sports Institute Pune

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To everyone who believes in the power of data to shape India's sporting future — this work is for you.

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