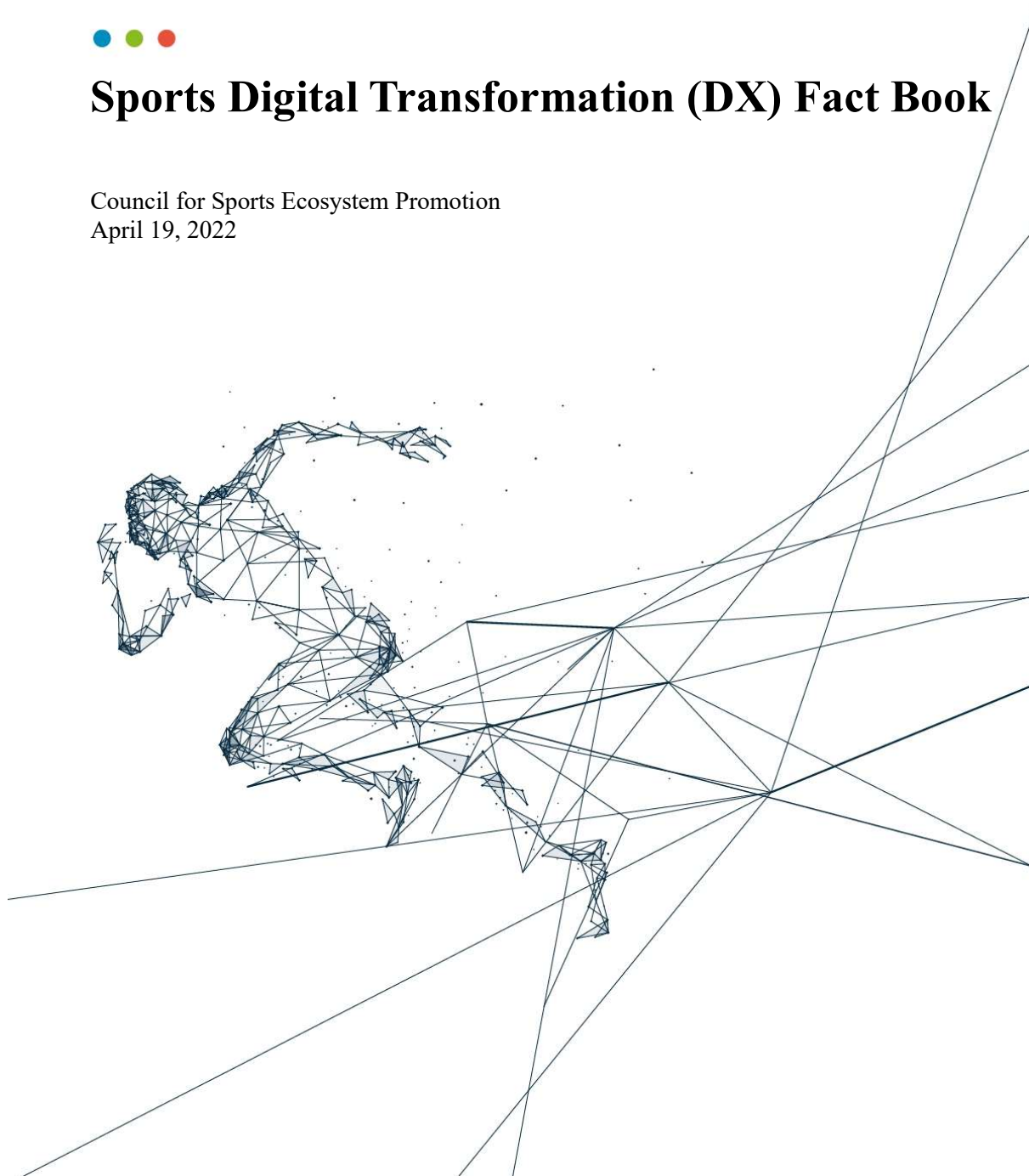




Sports Digital Transformation (DX) Fact Book

Council for Sports Ecosystem Promotion
April 19, 2022



1. Purpose of this Report

The purposes of this report are to provide some of the leading examples of sports digital transformation (DX) throughout the world and in Japan, and thereby discover and create new value for sports and share that value broadly, throughout society.

The examples contained in this report are current as of the date of this report. We will collect additional examples of sports DX cases as they evolve day to day and update this report accordingly.

2. Three Perspectives

This report will discuss the current state of sports DX from the following three perspectives:

01. Enhancement of fan engagement – Enjoyment of new supporter and spectator experiences;
02. Enhancement of the value of data and rights, as well as creation of new sales channels – Generation of new business; and
03. Preparation of new sports entertainment and environments – Bringing about new sports experiences.

From the three perspectives above, this report will also cover themes such as (i) potential of, not only major sports, but also minor and e-sports, (ii) Japan’s perspectives in the global sports landscape, and (iii) second-career support for athletes, who comprise the core of sports.

| Sports DX and Three Perspectives



3. Discussions

01. Enhancement of fan engagement – Enjoyment of new supporter and spectator experiences

Amid the spread of DX, the sports industry is adopting a variety of technologies to enhance fan engagement, bringing enthusiasm and excitement to fans, as well as contributing to the expansion of new fan segments.

- Use of blockchain technologies (e.g., NFTs and sports tokens)
- Fantasy sports and sports betting
- Use of gifting and crowdfunding services
- Enhancement of user experiences (e.g., novel viewing experiences)

02. Enhancement of the value of data and rights, as well as creation of new sales channels – Generation of new business

New initiatives are being implemented particularly in the United States in a bid to enhance the value of data and rights, and such initiatives are creating new sales channels as well.

- Diversity and trends of sports data
- Exploitation of Internet broadcasting rights and other rights, and an ideal framework for uniform management of such rights
- Countermeasures to prevent fraud and DX technologies (including the use of big data and AI)

Column: Spread of Global Sports Betting Markets to Sports in Japan, and Resulting Loss of Profits

03. Preparation of new sports entertainment and environments – Bringing about new sports experiences

A variety of challenges are under way amid the ongoing pursuit for novel forms of sports befitting the current times.

- Vision for novel stadiums, and potential synergies between local communities and sports
- Potential of e-sports and novel sports

Column: Examples of Second-Career Support for Athletes

Use of Blockchain Technologies (e.g., NFTs and Sports Tokens)

Features and Global Trends

- NFTs, sports tokens, and other blockchain technologies are drawing attention as symbolic technologies of the Web 3.0 era. Amid this environment, in particular, methods using such technologies are adopted to enhance fan engagement in the sports domain.
- In the United States, the four major professional sports leagues, including the NBA, have made inroads into the NFT business, with sales growing to reach tens of billions of yen in 2021. Europe has also seen growth of the fan engagement business using sports tokens.
- In Japan where some sports leagues/teams are starting to use those technologies, legal regulations and other bottlenecks are holding back the development of the NFT business, calling for immediate establishment of a proper business environment.

Global Cases

Use Case of NFT (NBA Top Shot)

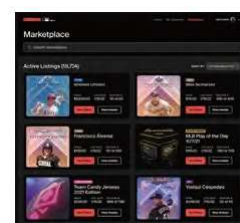
- NBA sells NFTs of clips of players in packages in partnership with Dapper Labs.
- Some are traded at the price of 200,000 dollars (approximately 22 million yen) or more.
- Total sales as of October 2021 recorded 732 million dollars (approximately 80.22 billion yen).
- Since the contents of each package are randomly selected, as with general trading cards, the trading on secondary distribution markets is active (which account for 95% of the entire sales).
- In September 2021, Dapper Labs announced a 250 million-dollar funding (approximately 27.5 billion yen) and its partnership with LaLiga.
- There are cases that some teams and players issue NFTs independently.



Source: <https://nbatopshot.com>

Use Case of NFT (Candy Digital)

- In June 2021, MLB announced its partnership with Candy Digital and, in January 15, 2022, launched the MLB Candy marketplace on.
- Items offered for sale include icon packs containing NFTs of players' photographs or icons, NFTs of clips of players, and memorabilia NFTs.
- Trading volume recorded one million dollars in the first eight hours, and 2.7 million dollars on the first weekend.
- NASCAR's Race Team Alliance also commenced Candy Racing services in February 2022 in partnership with Candy Digital.
- NFTs of racing cars and trophies were offered for sale.



Source: <https://mlb.candy.com/marketplace>

01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Use Case of NFT (NFL)

- NFL sells NFTs of virtual commemorative tickets in partnership with Ticketmaster.
- Fans who purchase tickets on NFL's authorized ticket platforms (Ticketmaster, Stubhub, and SeatGeek) are entitled to additional commemorative ticket NFTs.
- Fans who attend eligible games (and have their tickets scanned) will receive an invitation e-mail from the marketplace hosted by Ticketmaster a few days later and will be able to receive NFTs.



Source: <https://mlb.candy.com/marketplace>

Use Cases of Token (Chiliz)

- “Fan Tokens” are issued on the platform “Socios.com”.
- There is also a secondary distribution market where fans may trade Fan Tokens. The terms and prices vary depending on the team.
- FC Barcelona Fan Tokens (BAR) were offered for sale at 2 euros each, and 600,000 tokens (worth approximately 150 million yen) were sold out in less than two hours.



01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Japanese Cases

Use Case of NFT (Pacific League Marketing Corporation)

- In December 2021, Pacific League Marketing Corporation commenced “Pacific League Exciting Moments β” with Mercari, Inc., an official service authorized by the six Pacific League baseball teams offering NFTs of spectacular or memorable scenes of such six teams individually for sale.
- There is no secondary distribution market as of April 2022.



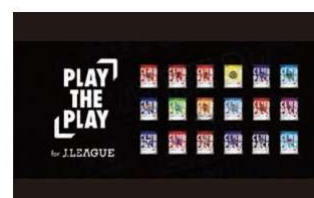
Use Case of NFT (DeNA Co., Ltd.)

- Two of the professional sports teams in the DeNA group provide NFT services.
- Kawasaki Brave Thunders, a professional basketball team in B.League, commenced pilot provision of “PICKFIVE” in May 2021, an online card game using player cards (NFTs), and launched an official version in February 2022.
- Professional baseball team Yokohama DeNA Baystars commenced providing “PLAYBACK 9” in November 2021, offering spectacular game scenes compiled into official digital movies (NFTs) individually for sale.
- Both teams offer new cards/scenes for sale every week for a limited time. If the number of purchase applications exceeds the issuance ceiling, a lottery is held to decide the eligible purchasers.
- A secondary distribution market for “PLAYBACK 9” commenced in April 2022, and is scheduled to commence for “PICKFIVE” in May 2022.



Use Case of NFT (Hakuhodo DY Media Partners Inc.)

- In February 2022, Hakuhodo DY Media Partners Inc. commenced the “PLAY THE PLAY” platform to issue NFT content to enhance engagement between professional sports teams or league and fans.
- As a first service, “PLAY THE PLAY for J.LEAGUE” was launched, which offer for sale the selected spectacular plays during the season of 2022 Meiji Yasuda Life Insurance J1 League after 24 hours from the end of matches as video trading card packs, and each package contains three NFTs (free of charge for a while after the season’s opening).
- There is no secondary distribution market as of April 2022.



01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Use Case of Token (Financie, Inc.)

- In 2020, Financie issued sports tokens for professional football clubs for the first case in Japan.
- Fans holding sports tokens enjoy benefits, such as (i) posting support messages, (ii) participate in balloting (e.g., voting for preferred design plans of club goods), (iii) entering in a lottery for special experiences, and (iv) participating in exclusive talk rooms.
- Services are provided to J.League and B.League teams, as well as the Japan Cycle League, among others.



Fantasy Sports and Sports Betting

Features and Global Trends

- Particularly in the United States, fantasy sports and sports betting are a huge driving force for tapping into new fan segments. Fantasy sports are simulation games played by forming virtual teams of real-world players, and players of fantasy sports compete for points earned based on real-players' performances in actual matches. The market size has reached approximately 970 billion yen and more as of 2021.
- Sports betting initially gained popularity in Europe, and after the United States effectively lifted its ban in 2018, it has spread globally and has been legalized in many countries (including all G7 nations except for Japan). In the United States, it is reported that this legalization has boosted the revenues of the four major professional sports leagues by around 470 billion yen a year, expanding the flow of funds back to these leagues. Payments to national and local governments arising from sport betting are also beginning to be allocated for welfare, education, and local municipality funds.
- In Japan, regulations currently prevent the implementation of fantasy sports or sports betting, unlike in Western countries. If those regulations are lifted, estimated market size could reach 300 billion yen for fantasy sports, and seven trillion yen for sports betting (in terms of the total amount of bets), according to private-sector estimates, calling for discussions on implementing these practices in Japan.

Global Cases

Fantasy Sports and Sports Betting in the United States (DraftKings)

- DraftKings is the largest fantasy sports operator in the U.S.
- After legalization in the U.S. in May 2018, the company launched sports betting services in August 2018.
- It has a 30% market share in the U.S. states that allow sports betting.
- It has partnership agreements with major sports organizations, including the MLB, NFL, NBA, UFC, and NASCAR.
- In 2021, the NFL, DraftKings, Caesars, and FanDuel entered into a partnership agreement where payments totaling 120 billion yen would be paid to the NFL over three years.
- In 2019, DraftKings stock was listed at valuation of approximately 363 billion yen.
- Its market capitalization was approximately 1.75 trillion yen as of March 25, 2022.



Source: <https://www.draftkings.com/>

01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Japanese Cases

Fantasy Sports (Mynet Inc.)

- Mynet launched the fantasy sports service, “Professional Baseball#LIVE2021,” in June 2021 (authorized by the Nippon Professional Baseball Organization (NPB)).
- Friends gather online and form virtual teams of current athletes through phone calls or chats. Two game modes are available: one is “Draft Conference Battle” where players compete based on the total scores computed from the athletes’ performances; and the other is “Pennant Battle,” a virtual pennant race where players compete every week, using the teams formed in the “Draft Conference Battle” (the athletes’ performance is linked to their actual performance in professional baseball games).
- Mynet also launched “B.LEAGUE#LIVE2021” in March 2022, along with daily rank battles at the end of April 2022, providing users with funds through a sponsorship scheme.



Source: <https://mynet.co.jp/service/sport/>



Source: <https://basket-count.com/bleague-live>

Use of Gifting and Crowdfunding

Features and Global Trends

- Gifting and crowdfunding allow fans to embody their encouragement and support for their favorite teams in various forms, including cash contributions. Japan has developed unique ways to adopt and expand these practices in its sports business.
- While there are many crowdfunding examples overseas, Japan has seen largescale fundraising initiatives utilizing a hometown tax deduction system (*furusato nozei seido*).

Global Cases

Crowdfunding (Jamaican Bobsleigh Team)

- Jamaica's bobsleigh team ran a crowdfunding campaign to participate in the 2014 Sochi Winter Olympics, successfully raising more than 129,000 dollars (approximately 14.2 million yen) in total.

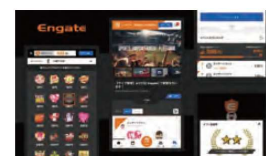


Source: <https://www.pledgesports.org/2017/12/best-sports-crowdfunding-campaigns/>

Japanese Cases

Gifting (Engate, Inc.)

- Engate provides one of the largest sports gifting services in Japan. Its services have been widely adopted, ranging from national teams to professional, amateur and college teams. As of March 2022, the number of participating teams and registered athletes has reached 120 and 4,000, respectively.
- Fans contribute gifts by purchasing Engate points first, then purchasing digital gifts for their favorite teams and giving them during events such as the teams' video streams or matches. In addition, Engate separately pays PR fees to those teams and athletes.



Source: <https://prtimes.jp/main/html/rd/p/000000025.00035012.html>

Crowdfunding (Kashima Antlers)

- Kashima Antlers F.C. Co., Ltd., which operates Kashima Antlers, the professional football team in J.League, ran a donation-based crowdfunding campaign using the hometown tax deduction system with cooperation from Kashima City and other municipalities, successfully raising approximately 200 million yen in total from around 2,800 contributors in 2021.



01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

SAGs — Sports Auto Graphics (DataStadium Inc.)

- A service that automatically generates infographics from a series of data and records for official club team SNSs (e.g., Twitter), such as the starting members and scores on match days, as well as post-match ranking tables.
- This service enhances greater communication capabilities with fans and supporters, while at the same time reducing the burden for club team staff involved in the editing and distribution. It also allows for advert placement on some content, such as those showing the starting members.
- Thirteen J.League clubs have adopted the service as of March 31, 2022.



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Enhancement of User Experiences (e.g., Novel Viewing Experiences)

Features and Global Trends

- The world is beginning to see the provision of viewing experiences using, for example, free-viewing point images with XR or 5G technologies. Businesses are entering the market in succession as they see potential in the scale growth, anticipating advancement of metaverse and NFTs discussed above.
- For growth of the market in Japan, it will be important to establish the business environment as discussed in the NFT section.

Global Cases

“Netaverse” by Brooklyn Nets (NBA)

- Video clips taken by more than 100 high-resolution cameras surrounding the court are fed into Canon’s “Viewpoint Video System,” creating real-like 3D renderings in a matter of seconds.
- Netaverse allows fans to watch games real-time from any of 360 angles in a virtual space.
- The first streaming was aired on the YES Network in January 2022.



Source: <https://www.youtube.com/watch?v=Yzclurste6I>

Manchester City F.C. Virtual Stadium (Sony Group Corporation)

- Sony Group and Manchester City F.C. commenced a proof of concept test, aiming to create a new fan community in a virtual space.
- A realistic image of Manchester City’s home stadium is reproduced in a virtual space. This creates an experience that fans can only get in virtual spaces, allowing them to feel close to players and the team, and to interact with other fans.
- In addition to Sony Group’s image analysis and sensing technologies, uses SkeleTRACK, a tracking technology provided by Hawk-Eye Innovations, a Sony Group company is used in this service.



01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Evolution of Streaming Distribution (Bally Sports (U.S.))

- Bally Sports, one of the largest local sports network stations in the United States, has been providing video streaming since May 2021 with personalized content and adverts using Harmonic VOS360, which is an SaaS on a public cloud.
- More than 230 channels are dynamically created for over 60 areas and for viewers by replacing content based on 40 live clips. While this would have required equipment on a massive scale in each area in the past, streaming distribution is now possible with uniform processing using Harmonic VOS360 on a public cloud.
- In addition to large-scale distribution (60,000-hour transcoding, a maximum of 250,000 simultaneous viewers, average viewing time of 151 minutes, and maximum bandwidth of 11 Gbps in a month), the number of advert impressions reached 210 million as a result of personalization, contributing to a stable distribution base and monetizing the business.



Japanese Cases

Use of Cutting-edge Technology and 5G Telecommunication (KDDI Corporation)

- Using XR technology allows viewers to enjoy seeing special areas that are usually not accessible (e.g., stadium pitches and locker rooms) from home.
- Visual systems combine footage from dozens of cameras, allowing viewers to watch critical moments from any perspectives of their choice. They can also watch replays by selecting angles freely with their smartphones.
- Next-generation sports watching experience — Yokohama Stadium is recreated virtually, allowing viewers to “visit” the stadium while they are at home.

(Ref.: Use of VR technology)



(Ref.: Virtual space)

SFgo (Fujitsu Limited, and RUN.EDGE Ltd.)

- An application, by using a clips and data platform provided by RUN.EDGE, and linking on-board and telemetry clips from all vehicles in Super Formula races in real-time, allows users to view live video clips together with real-time data.
- This application offers a novel race clip viewing experience, allowing viewers to search for specific scenes (e.g., overtakes, pit-ins, pit-outs, and accidents), view the on-board clips of those scenes, and check the telemetry data.



B.Live in Tokyo (Fujitsu Limited)

- B.Live was the world’s first next-generation live viewing experience held in Ebisu, Tokyo, during the 2018 B.League All-Star Game in Kumamoto, approximately 900 km west of Tokyo.
- In addition to the real-time projection of 4K-game clips on a 550-inch screen, a sound AR technology called “Sound Intelligence” was used to transmit the sounds of players’ footsteps and shots, as well as spectators’ cheers and court vibrations. By sharing not only clips but also sound and physical sensory data, the ambience of the stadium was relayed from Kumamoto to Ebisu, bridging the two remote sites with the excitement of basketball.
- The design concept was “live boosting.” Instead of the conventional “live viewing” that simply offered shared viewing on a large screen, three elements of the sports-spectating experience — ambience, emotional excitement, and a sense of unity — were “boosted” with state-of-the-art ICT, creating an experience rather exciting than in Kumamoto stadium.



Source: <https://www.fujitsu.com/jp/about/businesspolicy/tech/design/activities/b-live-in-tokyo/>

01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Sports-spectating Experience Using AR (NEC Corporation)

- In a Japan Volleyball League (V.League) women's match held in March 2021, V.League and NEC jointly conducted proof of concept tests on an AR presentation of game data, aiming to create a novel sports viewing experience.
- V.League updates stats information on its website during matches, which is transmitted to local servers through a mobile network (LTE). Content is then created for AR presentation and displayed on smart glasses worn by spectators at the match site. This allows the spectators to feel the excitement and ambience felt at the actual match, while at the same time keeping track of an array of real-time information, such as scores and player stats.
- During intervals between sets, spectators can obtain information on players' personal records, such as score rankings and the number of successful attacks, allowing them to enjoy the match even during breaks.



01. Enhancement of Fan Engagement – Enjoyment of New Supporter and Spectator Experiences

Japanese Cases

Personalized Viewing Experience Using VideoAI (NTT DATA Japan Corporation)

- NTT Data provides viewing experience personalized for each and every fan, using data analysis and video analysis AI (VideoAI). During the British Open golf tournament, the company provided video services that allowed fans to enjoy viewing scenes from their favorite angles (e.g., shots, fist pumps, players, and holes).
- Viewers can directly access scenes through detailed searches, such as by holes or shots, without fast-forwarding through all tournament clips.



AI Prediction Service for Live Baseball Game Broadcasts (DataStadium Inc.)

- DataStadium developed a prediction AI model using machine learning, utilizing the company's own extensive game data, broken down to every single pitch and ball batted. The model came out as an AI engine for baseball spectating, predicting and presenting optimal throws for pitchers to prevent runs (i.e., the types of pitches and trajectories).
- A live broadcast screen displays strikes and outs that are most likely to yield positive results for pitchers based on the predicted outcomes.



Diversity and Trends of Sports Data

Features and Global Trends

- Western countries use sports data in a variety of ways. For example, there are sales channels for stats data for media, stats data and game progress data for sports betting, as well as advanced data obtained with the use of cutting-edge technologies (mainly tracking data by Hawk-Eye and TrackMan). On the other hand, the sales channels in Japan are mainly those for the use of stats data by the media.
- Globally, the spread of fantasy sports and sports betting has enhanced the value of data, gradually creating new sales channels. In Japan, discussions from multiple perspectives are called for to create similar businesses moving forward.

Global Cases

Statcast (MLB)

- Statcast enables ball and player tracking, such as the number of rotations of pitched balls, as well as the speeds of balls hit and players' running. In addition to measuring players' performances, Statcast is used for other purposes such as predictions in fantasy games. It is also used for fan engagement, such as showing the types of pitches on ballpark scoreboards in addition to the ball speeds. Further, it is used to post rankings together with detailed information on the Baseball Savant page on the MLB.com website.



Source: <https://dlos.com/sports/winner/digital-social/mlbam/mlb-com-statcast-2553>

Play Analysis Service by Hawk-Eye (Sony Corporation)

- A service that analyzes the movements of balls and players across an entire baseball field in real time and compiles the results into data with advanced image-processing and recognition technologies. Players' 3D-bone-structure data can also be measured by synchronizing and analyzing videos captured by high-resolution, high-frame-rate cameras.
- Players' postures and movements can be analyzed in real time, making it possible to check and evaluate every single play in greater detail, including the pitchers' and batters' forms, pitching details, trajectories of balls hit and bat swings, as well as fielders' and runners' movements.
- The service is available in all 30 MLB ballparks and multiple training facilities under a multi-year contract, with also reflected in the MLB's Statcast system. The service is also provided to some Japanese professional baseball teams.



02. Enhancement of the Value of Data and Rights, as well as Creation of New Sales Channels – Generation of New Business

Creation of New Data Sales Channels and a Data Economic Zone

- The MLB directly monetizes its official data by providing such data to fans (for monthly fees) through its official website. It also has channels to provide data by exclusively selling them to one data provider (presently MLB enters into a multi-year contract with Sportradar), which provides data to the media and sports betting business operators as the official data provider. The MLB also monetizes data through licensing to sports betting business operators (revenues from bets partially flow back to the MLB as license fees and other payments). A kind of economic zone is emerging as the data collected from sports games are being traded among MLB, fans and related companies.

02. Enhancement of the Value of Data and Rights, as well as Creation of New Sales Channels – Generation of New Business

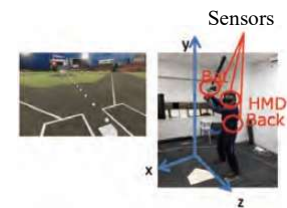
Japanese Cases

Obtaining Data in Japan (NPB)

- Eleven professional baseball teams in Japan adopted TrackMan (a ball tracking system) several years ago. They are now beginning to switch from TrackMan to Hawk-Eye as with the MLB.
- In around 2016, the Tohoku Rakuten Golden Eagles started providing the media with ball-tracking data measured with TrackMan, which is displayed during live TV broadcasts. Permission from the NPB and its 12 teams is required to obtain professional baseball data (e.g., ball news flash) for sale to the media or other purchasers.

VR-Assisted Training (NTT Data Japan Corporation)

- In addition to virtually reproducing pitches using real data, the technology senses batters' movements during VR training and analyzes the tendencies and other elements of batters' swings per pitch by making those elements visible in the form of data. It also enables analyses of transitions in players' performances over time, and player-by-player comparisons.
- The technology has been adopted by the Tohoku Rakuten Eagles, the Hiroshima Toyo Carp, and some MLB teams.



PITCHBASE (Fujitsu Limited, and RUN.EDGE Ltd.)

- By linking ball-by-ball data, and tracking data of pitches and balls batted to video clips, this technology enables users to search and watch video clips (scenes) of particular pitches and balls batted.
- Players, coaches and analysts use PITCHBASE for analyses to improve players' performances and defeat opponents by performing searches on ball-by-ball clips from different perspectives with iPads, checking data together with those clips and comparing pitching and batting scenes in the results of their searches.
- It is used by 75% of the NPB teams, and 25% of the MLB teams.



Source: <https://www.run-edge.com/products/>

02. Enhancement of the Value of Data and Rights, as well as Creation of New Sales Channels – Generation of New Business

Football Analyzer (DataStadium Inc.)

- A football-dedicated system enabling detailed analyses combining data and video clips from plays during the matches.
- With data linked to video clips, users can select and watch clips of specific plays or players all at once by setting certain analysis conditions. The technology also offers video-clip editing functions to place tags on and process clips, as well as to output timeline clips altogether, with a single software completing all the processes from detailed analyses to editing.
- In addition to the functions above, DataStadium also offers access to the Football-BOX website (which can also be used on smartphones), and Rugby Analyzer, a rugby-dedicated system.



SPORTERIA (DataStadium Inc.)

- An open-innovation portal website related to sports analytics.
- It allows sports data browsing and writing blogs using the data.
- Users can hold competitions on the website. DataStadium supports the holding of those competitions. Having started with football, it plans to expand competitions to other sports and add a variety of new content.



ONE TAP SPORTS (Euphoria Co., Ltd.)

- Euphoria started developing the app as a tool to visualize the Japan national rugby union team players' conditions ahead of the 2015 Rugby World Cup.
- The app is now used widely in areas applying technology and data for purposes such as conditioning, injury prevention and training of top athletes.
- The app is used by 70,000 athletes, including 26 national teams in Japan.
- The technology enables staff members in various capacities to make the conditions of athletes and teams visible as data from multiple perspectives. It is used in a wide range of initiatives, most recently in collaborations with universities, as well as being used by elementary and junior-high school students.



Exploitation of Internet Broadcasting Rights and Other Rights and an Ideal Framework for Uniformly Managing Those Rights

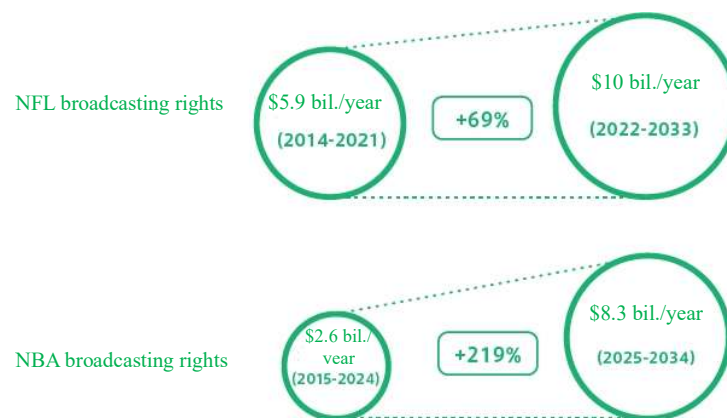
Features and Global Trends

- In the United States, the MLB, the NHL and the NBA have systems in place to maximize revenues from broadcasting rights by the respective leagues uniformly managing and selling Internet broadcasting rights, and each team selling television broadcasting rights to local TV stations (in Japan, each league has different methods of managing and selling broadcasting rights).
- Revenues from broadcasting rights of sports events in the United States are further trending upward, pushed up by the growing popularity of sports betting.

Global Cases

Broadcasting Rights Business in the United States

- The MLB has a blanket broadcasting right contract and distributes revenues to 30 teams. It recently announced signing contracts with Apple and NBC, granting Apple the right to air two games on Apple TV on Fridays at 9.8 billion yen (including advertising expenses), and NBC a broadcasting right to air games on Mondays and Wednesdays at 3.4 billion yen. MLB's broadcasting revenues for the 2022 season is expected to reach 225.4 billion yen, including from those contracts.
- Broadcasting rights fees are soaring with the increasing legalization of sports betting across the United States. The fees have spiked approximately twofold for the NFL and threefold for the NBA.



02. Enhancement of the Value of Data and Rights, as well as Creation of New Sales Channels – Generation of New Business

Japanese Cases

J.League and B.League Broadcasting Rights Business

- Broadcasting rights for official J.League games are held by the league, which has a broadcasting rights contract with DAZN, an official broadcasting partner, for airing on the Internet, among others (totaling 223.9 billion yen for twelve years from 2017 to 2028). Likewise, the B.League has broadcasting rights for official league games, which are uniformly managed and sold by B.Marketing.

NPB Broadcasting Rights Business

- Each team belonging to the Nippon Professional Baseball Organization has broadcasting rights. In the Pacific League, Pacific League Marketing uniformly manages and sells Internet broadcasting rights to DAZN, Rakuten TV and Pacific League LIVE. In the Central League, in 2022, five teams, excluding the Hiroshima Carp, sold broadcasting rights individually to DAZN.

DX Technologies and Countermeasures to Prevent Fraud, Including the Use of Big Data and AI

Features and Global Trends

- There is a growing momentum to adopt DX technologies, including usage of big data and AI, as countermeasures against fraud.
- In particular, countermeasures against fraud are indispensable for implementing sports betting and fantasy sports. In the West where more places are legalizing those practices, an increasing number of sports organizations are adopting private integrity (fraud prevention) services.
- Sportradar, an integrity service provider, was listed on the NASDAQ in 2021, gaining momentum with its market capitalization reaching close to 8 billion dollars.

Global Cases

Fraud Prevention Services by Data Providers

- Sportradar has been taking fraud prevention measures since 2005. Sportradar monitors hundreds of betting operators, and in addition to detecting suspicious cases with advanced algorithms, analysts scrutinize betting markets and sports matches 24-hours a day, by monitoring news on teams, local rumors, and match developments. 26 different sports and 1,000+ leagues use the service.
- Genius Sports also provides fraud prevention services, with its market share trailing behind Sportradar. In Japan, the B.League uses Genius Sports' services. The two companies account for most of the global share.



Source: <https://integrity.sportradar.com/anti-match-fixing/monitoring-and-detection/>

Japanese Cases

B.League and Integrity Services

- The B.League has adopted integrity services offered by Genius Sports, along with introducing software, as fraud prevention measures.
- Japan's sports markets have become a target of betting amid these global trends (as mentioned below), giving rise to the risk of athletes being involved in fraud or other misconduct. Measures to reduce the risk are called for, such as by using athlete education offered through integrity services.



Source: <https://news.geniussports.com/genius-sports-secures-multi-year-official-data-and-video-streaming-partnership-with-japan-b-league-2/>

02. Enhancement of the Value of Data and Rights, as well as Creation of New Sales Channels – Generation of New Business

Technology for Money Laundering Countermeasures, and Identity Verification

- Money laundering countermeasures and identity verification technology adopted by the financial and other industries will likely become an important factor also in the growing trend of the use of DX technologies in sports businesses.

COLUMN

Spread of Global Sports Betting Markets to Sports in Japan, and Resulting Loss of Profits

Potential Profits from Global Sports Betting Market

- Advancement of globalization and digitalization has ushered in an era where services easily go cross-border.
- Our analyses have found that Japan's sports content is attracting a massive amount of bets from overseas (5 to 6 trillion yen a year), with no profits returned to Japan's sportsdom, resulting in a serious loss of profits.



Overview of Analysis: The above amount was calculated by examining data provided to sports betting business operators and having the data analyzed by experts.

The types of sports in Japan targeted by overseas bettors are obviously major professional sports but also extend to minor sports. Our desktop research of sports covered by overseas bookmakers has found that bets are placed on a variety of sports, both major and minor, or in some cases even on amateur sports.

Considerations for Steps Ahead

- As Japan's sports content and data are flowing out of the country when there is no clear legal framework defining the nature of data rights, an important perspective will be how to protect Japan's sports and to ensure that national interests, having flowed out once, return to the country.
- Meanwhile, as the ecosystem of funds using DX expands exponentially overseas, public and private sector discussions are called for to consider initiatives for this country to create sales channels for sports data and strengthen the ecosystem of sports funds.
- Another important perspective will be to protect athletes and other stakeholders against game-rigging or other fraud, as Japan's sports are targeted by overseas sports bettors in the absence of sufficient management of domestic sports organizations.
- By creating authorized markets domestically, overseas countries are using revenues from sports betting for education and welfare, as well as for local revenue. Accordingly, it will also be important to hold discussions from the perspective of the ecosystem of funds in society.

Vision for Novel Stadiums, and Potential Synergies Between Local Communities and Sports

Features and Global Trends

- The United States saw a trend of turning conventional baseball stadiums into ballparks starting in the 1990s. Amid this movement, there have been initiatives to enhance fan engagement by pursuing ideal, novel stadiums. Platforms to encourage initiatives to create synergies between local communities and sports have been set up, with those initiatives driven by organizations in different localities, using their unique colors and advantages.
- Japan has also had active movements to pursue ideal and novel stadiums, as well as collaboration with local communities. It will be even more important to implement unique initiatives engaging municipalities and entire local regions.

Global Cases

State-of-the-Art Stadium in the United States

- SoFi Stadium in the State of California was built entirely with private contributions, its construction cost totaling 500 billion dollars, the highest-ever as a private constructed stadium.
- The massive stadium has state-of-the-art facilities: a 360-degree, dual-side videoboard hanging from the ceiling, the ceiling equipped with the world's largest cable net system, and digital twin technology adopted for the first time in the United States.
- Its annexed concert hall, The YouTube Theater, houses an audience of 6,000.



Sports Commissions in the United States

- In 1979, Indianapolis launched a sports commission for the first time in the United States, followed by other places establishing sports commissions leveraging their unique colors and advantages. The National Association of Sports Commissions was inaugurated in 1992.
- The Cleveland Sports Commission (est. 2000) has held an array of major sporting events (e.g., MLB All-Star games and NFL draft) and has created a variety of mechanisms for active engagement of citizens, as well as local and small businesses. The commission was awarded the Sports Commission of the Year in 2019.
- The West Michigan Sports Commission (est. 2007) focuses on amateur and youth sports, hosting 100 events in 2021 (creating economic benefits of 550 billion dollars, 184,360 athletes/visitors, and 42,847 nights of sport event-related hotel stays).

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Japanese Cases

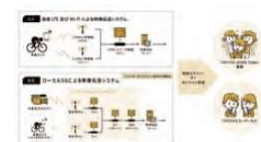
Tohoku Rakuten Golden Eagles and Ballpark (Rakuten Baseball, Inc.)

- By referring to ballparks that evolved in the United States, Rakuten successfully created a ballpark as a complex facility that visitors can enjoy the whole day, also contributing to the club's revenues.
- In addition to developing tangible infrastructure, such as an adjacent park and accommodation facility, Rakuten introduced QR-ticketing and full cashless payment systems and is also developing services linked to Rakuten IDs (ID which is used for shopping via Rakuten, one of the major e-commerce platforms in Japan).
- Rakuten is working to cooperate not only with Sendai City and Miyagi Prefecture, the city and the prefecture where Golden Eagles has its home town, but also with all local municipalities in the northern Tohoku region of Japan.



Video Streaming from TIPSTAR DOME CHIBA using 5G (MIXI, Inc.)

- In the PIST6 Championship, a novel bicycle track tournament organized by Chiba City as a publicly-managed sport, MIXI provides, among others, support for video streaming and production.
- MIXI independently developed an onboard broadcasting system to transmit dynamic onboard video clips from cameras mounted on athletes' bicycles. It also developed a video editing system to edit and transmit data and photographs of races and athletes in real time by automatically obtaining them from an outside system. The video clips captured and edited at the dome are streamed live on TIPSTAR and YouTube.
- MIXI has obtained a local 5G radio station license in order to stream low-delay, high-quality videos for users, offering a novel video experience at the stadium to society at large.



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Japanese Cases

Linking Football Games and Real Football (Konami Digital Entertainment Co., Ltd.)

- Konami ran a campaign giving away stadium football spectating tickets on an video game, aiming to attract new supporter segments to stadiums with the eFootball series (formerly the Winning Eleven series).
- Kawasaki Frontale, football team in Japan, which conducted the campaign, favorably viewed the campaign as follows: “the campaign drew the highest-ever number of applicants, with 96% of the winners visiting the stadium being first-time spectators, which means that we were able to acquire targets in their 10s and 20s whom we could not have otherwise gained.”



Ticket Revolution (Fujitsu Limited)

- Focusing on the high hurdle for buying tickets for sports events, Fujitsu created the industry’s shortest 3-step ticket purchasing process: select a match date, pick a seat, and make a payment. The service also enables post-purchase seat upgrades and additional ticket/option purchases, providing fans with amenity in their ticket purchasing experience.
- Fujitsu has been expanding the service on an ongoing basis, such as adding seasonal seat and resale functions, which is contributing to maximizing promoters’ business revenues.
- At present, multiple NPB baseball teams use the service.



Source: <https://www.fujitsu.com/jp/services/business-application-services/innovative-application-services/>

Fansta — Helping Finding Sports-Watching Restaurants and Bars (MIXI, Inc.)

- A service enabling fans to search for sports-watching restaurants and bars by area or scheduled air date. With the catchword, “on game day, the bar is our stadium,” fans in remote areas or with other difficulties in visiting a stadium and sports-watching enthusiasts can find nearby sports bars with DAZN channels and enjoy a sports-watching experience there with their friends.



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Okinawa Arena and Digital Signage Mega Vision (Azusa Sekkei Co., Ltd.)



- The signages installed in Okinawa Arena embody a highly versatile plan, functioning to show ordinary guide signs and instructions in emergencies, as well as bringing event advertising revenue. In addition, installing signages near vomitories is a relatively new attempt.
- The 510-inch mega vision screen, one of the largest vision in arenas in Japan, is easily visible from any seats in the arena, enabling rendition that elevates spectators' spirits. By using 4DREPLAY for the first time in Japan, a technology capable of fast-processing video clips captured from different angles, an innovative form of sports-spectating was created, enabling visitors to watch scenes unseeable from their seats on the huge mega vision screen.
- Sixty special 4K cameras permanently installed in Okinawa Arena capture videos from a variety of angles, from which highlight scenes are picked up instantly. This allows a full 360-degree viewing experience of crucial scenes that are too good to miss.

Covid-19 Infection Countermeasures and Sports Spectating (NEC Corporation)



- NEC conducted proof-of-concept tests aiming for stadium operations implementing measures at entrance gates and reducing infection risk in crowded spaces, as well as providing hospitality offering novel sports-spectating experiences.
- A video analysis technology was used to detect spectators without masks during matches and to monitor the degree of congestion in certain places.
- For premium members, the technology was also used for hospitality — registering their facial image on arrival enabled displaying member-specific welcome/thankyou messages, as well as welcoming them into a member lounge using facial recognition without a show of any identification. Based on camera footage, the video analysis technology was used, supporting laying out the criteria for holding safe and secure events.
- The technology enabled (1) measurement of mask-wearing rate and chronological transition analyses using camera footage in and outside stadiums, (2) measurement of human flows and density in concourses (around restrooms and in front of restaurants), slopes and other places using camera footage, and (3) support for other companies' relevance analyses of CO²-levels, beacon, and geolocation data, along with camera footage and the progress of matches.

Potential of e-Sports and Novel Sports

Features and Global Trends

- The global popularity of e-sports has led to a decision to make it an official sport for the first time in the 19th Asian Games to be held in Hangzhou, China in September 2022. With the Olympic Virtual Series first organized by the IOC in June 2021, e-sports held by international organizations are growing.
- Sales in the global e-sports market exceeded 110 billion yen in 2020, with the market size in Japan also estimated to grow from approximately 6.7 billion yen in 2020 to reach 50 billion yen in 2026. Globally, e-sports betting, too, has seen active movement.
- New sports (e.g., urban or mind sports) are also showing active movement, gaining popularity compounded by their spread on SNSs and video streaming services.

Global Cases

e-Sports by European Club Teams: eFootball.pro (Konami Digital Entertainment Co., Ltd.)

- The official eFootball professional league organized by KONAMI since 2019.
- Championship where real European football clubs sign up e-sports players, who compete for the honor of their clubs.
- Wins by e-sports players are linked to the real clubs and fans in the form of returning rewards. Holding linked events during e-games helps clubs to attract players of the video games to become club fans.



Thai e-League Organized by Football Association of Thailand (Konami Digital Entertainment Co., Ltd.)

- Participated in by all T1 clubs, the Thai e-League is another professional football league organized by the Football Association of Thailand.
- Along with the King's Cup Football Tournament, the only e-sports modality in sports events organized by the Thai royal family.
- Since the initiatives started, the e-league has seen its presence expand from inside Thailand to broader Asia and increased interactions with other countries every year.



Brazil e.GOL Organized by South America's Largest Media Company (Konami Digital Entertainment Co., Ltd.)

- A new professional football league organized by Globo, the largest media company in South America, and mainly participated in by Konami's partner clubs.
- Brazil e.GOL is not only the top digital medium of virtual football matches in the football kingdom, but has also become popular



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content enjoyed by people of all ages and any gender on nationwide TV broadcasts.

Japanese Cases

eBASEBALL “ProSpi” A League (Konami Digital Entertainment Co., Ltd.)

- eBASEBALL “ProSpi” A League is an e-sport co-organized by NPB and Konami.
- The league is operated as a baseball promotion initiative mainly targeting young generations.
- The league also runs campaigns where team fans enjoy a return of benefits according to the performance of e-sports players (support appreciation campaigns for team fans).
- Providing links to professional baseball team websites in the app, and creating collaboration video clips of e-sports and professional baseball players also contribute to attracting new fans to professional baseball team with the leverage of e-sports.



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Japanese Cases

eJ.League Winning Eleven (Konami Digital Entertainment Co., Ltd.)

- An e-sports championship co-organized by the J.League and Konami and widely open for anyone to challenge from a mobile version.
- All 40 J1 and J2 clubs in the J.League select their representative players and compete for the No. 1 position.
- With each team comprising three players from the U-15, U-18 and all age groups, the league contributes to raising awareness of the J.League among the youth population.
- Clubs earn prize money according to the performance of their e-sports players, facilitating support by club supporters who did not know about e-sports.



e-Sports “RAGE” Holds International RAGE ASIA Championship — Also Providing Novel Spectating Experience Using VR (CyberZ, Inc., AVEX Entertainment Inc., and TV Asahi Corporation)

- RAGE ASIA was held as an online championship in 2020. With selected game titles, “Knives Out” and “APEX Legends,” it was streamed as an exhibition championship inviting top professional teams from Japan and other Asian countries.
- In addition to the release of “V-RAGE” offering a novel spectating experience using VR, avatar items to wear in the VR space were provided through collaboration with BEAMS.



Providing Esports Vote System (EVS), a New Sponsor-Monetization Scheme (CyberZ, Inc.)

- CyberZ has developed and provides a new activation scheme to return quantitative results and effects of sponsorship to sponsor companies. By free membership registration for sponsor companies' services and downloading free apps, users can obtain voting tickets, predict the winning teams and receive prize money.



E-Sports Facility “eXeField Akiba” (Azusa Sekkei Co., Ltd.)

- An e-sports facility planned and operated by NTTe-Sports Corporation. Equipped with a cutting-edge ICT and latest gaming gear, the facility promotes the entrenchment of e-sports culture among broader segments, creation of communities, and advancement of e-sports technologies. By creating a minimum unit of gaming desk and gaming chair and facilitating layout changes, the facility offers flexible planning from events such as for e-sports, seminars and gatherings, to business use.



Photo provided by Tanseisha; Photographed by Taichi Misonoo

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Student Sports Support Project (KDDI Corporation)

- To support student sports that are holding out amid the Covid-19 crisis, KDDI significantly boosted the number of live streams in joint cooperation with Undo Tsushin Inc., supporting live broadcasting of a variety of student sports.
- KDDI also revamped the college sports environment as a top partner of the Japan Association for University Athletics and Sport (UNIVAS). They are jointly developing a unique database and are also working on video streaming.



Accelerated Movement to Establish Professional Leagues (e.g., Urban Sports and Mahjong)

- Urban sports have become popular content thanks to video streaming services, among other reasons.
- Among the newly formed leagues are a professional mahjong league (the M.League) and professional dance league (the D.League), each booming with popularity. There are also active initiatives to attract new fans and provide services using SNSs.

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Examples of Second-Career Support for Athletes

Second Careers

A variety of initiatives are being implemented around the world to support the second careers of athletes at the center of sports. We mainly have collected examples of athlete career support in the United States.

1. U.S. Ski and Snowboard Association (USSA) Athlete Career and Education Programs

The USSA provides the following programs to national team-level athletes:

Education	Partial tuition subsidies, provision of public college tuition in certain states, scholarships, and provision of opportunities to obtain qualifications from supporting companies.
Career	Preparation of resumes, preparation for interviews, lecturer training courses, internships at the USSA, partner companies, affiliated groups, and others, and workshops (e.g., tips for setting life goals, fundraising, and networking).
Transition	Rookie camps, Zoom sessions providing life navigation advice to recently-retired athletes, LinkedIn group for former athletes, and multiple other transition support groups in the USSA.
Funding	Referrals of athletes in financial need to organizations that provide financial support to national team/elite level athletes (the United States has many such organizations).

Reference: The USSA operates Olympic ski and snowboard teams in the United States. In addition to 30,000 combined athletes, officials, and coaches, the USSA has a network of more than 100,000 parents, volunteers, and supporters. It is the most diverse Olympic association in the United States, governing sports that account for nearly 50% of Winter Olympic events. It provides guidance to and supervises skiers and snowboarders in more than 400 clubs nationwide and pulls together all U.S. programs, in coordination with local clubs. From grassroots programs to international elite teams, the USSA is involved in all aspects of competitive skiing and snowboarding, from training athletes to sending them to national teams every year and to Olympic teams.

2. Partnership between MLB and Northeastern University

Based on the Continuing Education Program determined in the collective bargaining agreement (CBA) in 2016, MLB selected Northeastern University as its preferred education provider in 2017. The partnership provides educational opportunities for interested

players—both during and after their baseball careers—through in-person and online instruction. Players are given access to bachelor’s degree programs in high-demand fields such as finance, health sciences, information technology, human services, communications, and psychology, as well as master’s degree and certificate programs in areas such as data analytics, sports leadership, digital

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media, and project management. Players are given access to the university's global network of more than 3,000 industry partners and also can take advantage of its network of campuses across the United States and Canada.

Northeastern also supports the objectives of MLB's Front Office and Field Staff Diversity Pipeline Program by providing academic and career counseling—regardless of social and cultural background—to prepare players from all backgrounds for potential roles in the front office or as on-field staff (such as coaches and scouts) after their playing careers end.

3. NFL Player Engagement

A program operated by the NFL, offering guidance, support, and resources to its players during three core stages of their careers: Prep, Life, and Next. Every year, NFL Life (current players), and NFL Next (former players) provide a total of 2,000 players and their spouses with a variety of programs and services focused on career development, financial management, education, and psychological and physical wellness. A portal (and app) also are made available to current and former players.

4. Conclusion

As mentioned at the beginning, this report was compiled to provide some of the latest examples of sports DX throughout the world and in Japan, and thereby discover new value for sports and share that value broadly, throughout society, as well as to shed light on the differences between Japan and the rest of the world.

In individual sports DX initiatives within and outside Japan, as discussed above, Japan does not fall far behind other countries in numerous areas (on the contrary, there are a number of areas in which Japan takes the lead). Nevertheless, Japan's sports industry trails behind Western countries in terms of size.

While this report has not scrutinized the reasons behind those differences, we believe it does provide readers with the idea that one of the reasons for the differences relates to the core of DX, for example, establishing appropriate systems and mechanisms, including an ideal legal framework.

We note that there are ongoing discussions, including by the committee on improving property rights in the sports content and data business established by the Japanese government, to explore the rights and rules required to support the expansion and growth of sports industry in Japan. We strongly hope that the challenges discussed in this report will be identified in further detail and opinions for future directions will be presented.

In any event, we will update this report in a timely and appropriate manner, in line with a variety of future developments in the DX era, in the hope that this report will assist in the progress of commercializing sports and promoting the sports ecosystem in Japan.