



U.S. Soccer

About U.S. Soccer

Founded in 1913, the U.S. Soccer Federation has been the official governing body of the sport in the United States for more than 100 years. During that time, the sport has grown tremendously at all levels. As U.S. Soccer looks towards the future, its mission is to make soccer the preeminent sport in the United States. With a long-term and strategic approach, U.S. Soccer aims to accomplish its mission by supporting its members to increase participation at the youth and adult levels, develop world class players, coaches, and referees to consistently win at the highest levels on the international stage and serve the fans by engaging with them in deeper and more meaningful ways. For more information, visit ussoccer.com.



Opportunity

U.S. Soccer has achieved unprecedented success on the field in recent years, particularly on the women's side. To continue its tradition of excellence, the organization seized the chance to improve how it collects, organizes, and applies sports science and medical data for National Teams, including their youth teams. Implementing an athlete management system (AMS) had the potential to positively impact on-pitch play, expedite data analysis, and simplify research into best practices.



Challenge

Depending on the team, U.S. Soccer uses between five and 10 systems, apps, and devices to gather player data, none of which were previously integrated. This made it difficult to unite information centrally in a way that it could become usable by coaches, performance staff, and players. Extending human performance analytics to 25 teams and larger talent pools meant managing data for the 500 to 600 National Team players.



Solution

U.S. Soccer is using Smartabase to consolidate, visualize, and monitor player data before, during, and after National Team camps. Collecting comprehensive medical and sports science information enables staff and coaches to closely monitor daily availability, injury status, and wellness, manage player load, perform screens and physical tests, and more. Smartabase also allows U.S. Soccer's sports scientists to export player data into tools like R, Python, Tableau, and Power BI to perform advanced statistical analysis.



Impact

Replacing Excel spreadsheets and multiple disparate databases with Smartabase has allowed U.S. Soccer's performance and HP analytics staff to consolidate player data in a well-organized, central library. Having ready access to this single source of truth allows them to do more with player data in less time, become more proactive in monitoring player workload, health, and wellness, and create a standardized approach to data-informed decision-making.



The Opportunity



When you have a system with easy access, you need fewer people to do more work. And that's a big benefit, especially in sports where your budget is restricted.

- Rick Cost, Director of High Performance, U.S. Soccer



When Rick Cost joined U.S. Soccer as director of high performance from Dutch club Feyenoord, one of his goals was to “standardize most concepts and elements we’re trying to apply in supporting our technical staff and players.” This included creating repeatable processes for collecting, managing, and utilizing player data, which was easier said than done, as there are 500 to 600 players spread across 13 National Teams.

To support this effort, Cost decided to extend U.S. Soccer’s use of the Smartabase athlete management system (AMS) from the five teams that already had it in place. The platform’s proven integration capabilities simplified this.

“Because Smartabase is so active in the market, they have a way to transfer the data for pretty much all the modalities we have in-house,” Cost said. “There are APIs for almost every piece of data we use, which makes it super easy for us to do the things we want to do and is the basis of why we use Smartabase in general.”

Cost and his staff also saw the potential for Smartabase to simplify data collection and extraction for research purposes. “Let’s say publication takes about seven to 12 months to finish,” he said. “More than half of that time is structuring the data – getting it in the right place and in the right order. With Smartabase, it already is.”



The Challenge



There are so many different data carriers. Let’s say we had an app for each one. Every single day, we’d need to open 10 of them in order to figure out where every single player is at or what he or she has done.

U.S. Soccer has long seen the value in collecting real-time and historical sports science and medical data for its players. The sheer scale of the player pool it manages with a small performance and analytics staff was part of the challenge, as was the number of different data input devices. Among the systems used are performance testing equipment from VALD, Nike, and 1080 Sprint, STATSports GPS monitoring, heartrate variability (HRV) technology, Headspace for mindset training, and more.

“To be able to collect every piece of data, use it in a way that we can do research with it, and pull it towards another environment for a more specific use, we needed to have a library,” Cost said.



Another obstacle to managing player data effectively was how difficult U.S. Soccer found it to obtain pre-camp documentation such as a medical questionnaire. “If you’re not with a professional club, we have trouble getting your data,” Cost said. “Universities typically aren’t very responsive, so it usually goes through the player. If they’re under 18, we need to ask the parents to answer the questionnaires. If you’ve got a player who’s at a really active academy, you could ask the academy director, head trainer, or the sports scientist to do so.” This led to a multi-week paper chase before each National Team camp began.



The Solution



There are APIs for almost every piece of data we use, which makes it super easy for us to do the things we want to do and is the basis of why we use Smartabase in general.



Whether it's uniting medical and sports science data so coaches can monitor player performance, load, and wellbeing during camps, organizing information so it's easily exported for research and analysis in statistical systems, or improving pre- and post-camp information sharing with clubs, U.S. Soccer is counting on Smartabase.

Availability and Injury Monitoring

To make the most of the limited time they have with players at National Team camps, their coaches need to know who is able to practice and play each day. This is where an availability dashboard in Smartabase is helpful. It shows each player's training status and eligibility for matches, along with any restrictions they might have that means they can participate but with certain limitations. This report also has an injury monitoring component that shows the issue a player is dealing with and how it's being treated, as well as any manual therapy non-injured athletes are receiving daily.

"Smartabase holds everything we need on the medical side," Cost said. Color-coded flags alert staff when there's a status issue, which Cost said then prompts them to answer pertinent questions like, "Is it normal, or strange?" and "Is this inside or outside the limits of what we'd expect or is acceptable?"

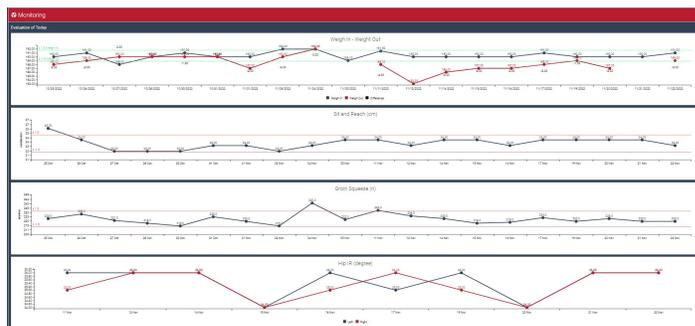
Today's Availability

Name	Status	Injury/Illness	Comments
[Player Name]	Full	Left Anterior Hand WTTX Thumb tendon injury	No reported issues and no limitation
[Player Name]	Full		No reported issues
[Player Name]	Full		No reported issues
[Player Name]	Full		No reported issues
[Player Name]	Full	Medical illness MIRU Other upper resp tract infection	Slight cough but full activity
[Player Name]	Full		No reported issues
[Player Name]	Full	right ankle contusion	Continue to monitor ankle
[Player Name]	Full		No reported issues
[Player Name]	Full		No reported issues
[Player Name]	Full		No reported issues
[Player Name]	Full		No reported issues

Physical Screening and Performance Testing

Like many high-performance sports organizations, U.S. Soccer performs physical screens with its players that can inform injury mitigation and training interventions. "With the senior teams, we are using standard testing like the groin squeeze to figure out where a player is at the moment relative to their general daily status," Cost said. "So if you're either green or red, you're good to go and ready to perform or not." National camp attendees are tested for internal and external hip rotation using a homegrown system and complement this with assessments performed by their official partner, Nike, twice a year.

"We also use 1080 Sprint to create power-velocity curves and might tweak step frequency or maybe ground reaction force in order to increase speed," Cost added.

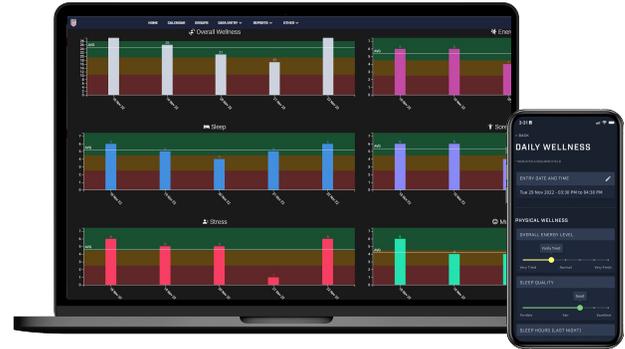




Daily Wellness

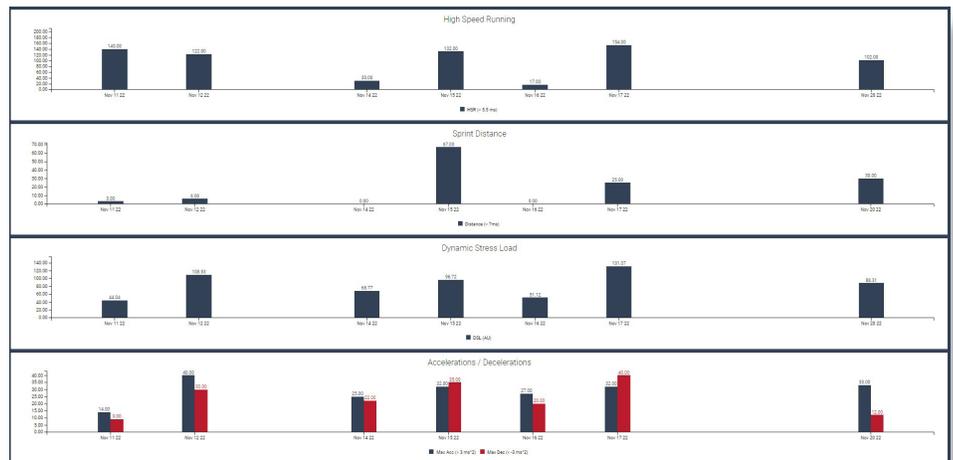
Players also complete a wellness survey every day in Smartabase to subjectively self-evaluate their physical and mental wellbeing. It includes ratings for soreness, sleep quality, hydration, mood, and any new injury or illness information. This allows staff to identify any issues that arise early.

When combined with objective practice data, a player's rate of perceived exertion (RPE) also enables coaches to answer Cost's question, "This is what you did, now how do you feel?"



Load Monitoring

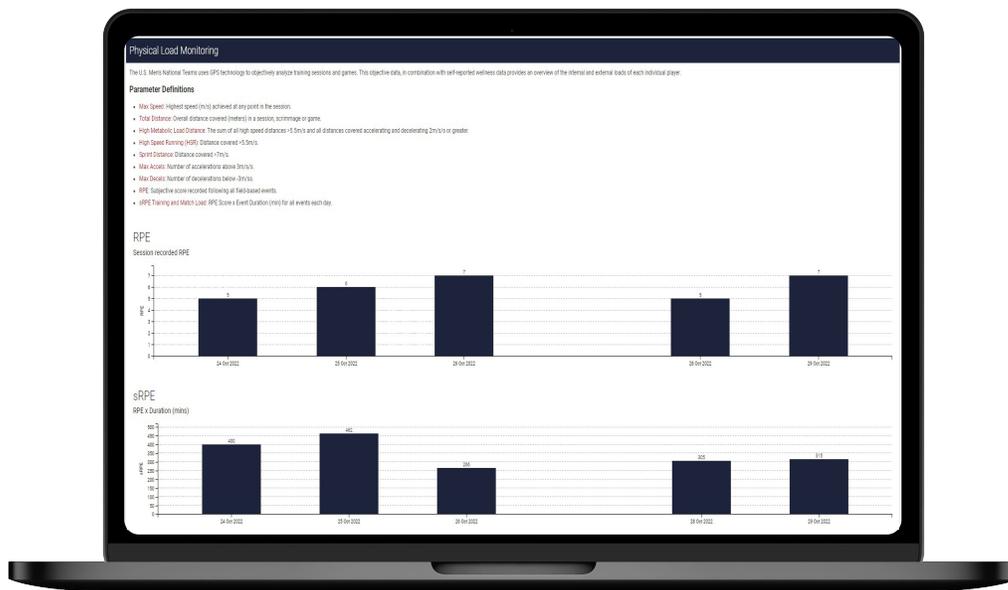
Completing a full club season while also serving the National Team can be a lot to manage for any player. That's why U.S. Soccer uses Smartabase to proactively monitor load. This begins before players even report for National Team duty. "We ask every player to upload their GPS data when they're four weeks out from camp," Cost said. "And then during the sessions at our camps, we have the daily data we collect per session, plus games, and we have STATSports for GPS. All the data gets sent through an API to Smartabase." The combination of historical and current data enables staff to keep track of daily loads with greater context.





Post-Camp Physical Workload Report

Once a National Team camp ends, U.S. Soccer staff want to create continuity with players' training and medical care when they return to their clubs. To do so, they summarize everything that happened during each session and match in a post-camp physical workload report. This can include GPS data from practices and games, physical screening and performance testing information, and medical details about the player's status before and during camp, along with any treatment they received.



Pre-Camp Medical Questionnaire

Another use case for Smartabase that U.S. Soccer has found is managing players' medical information. Before coming to a camp, they're expected to submit a questionnaire that includes details of previous and current injuries so that the National Team's medical and performance staff know what they're dealing with from day one. Collecting this via a mobile app is much more efficient than the old way of sending emails and making phone calls.

"We've now figured out how to create an account for every player so that it's the individual who can decide whether or not they can enter the data or if it needs to be their parents or the academy director," Cost said.

Third-Party Data Analysis

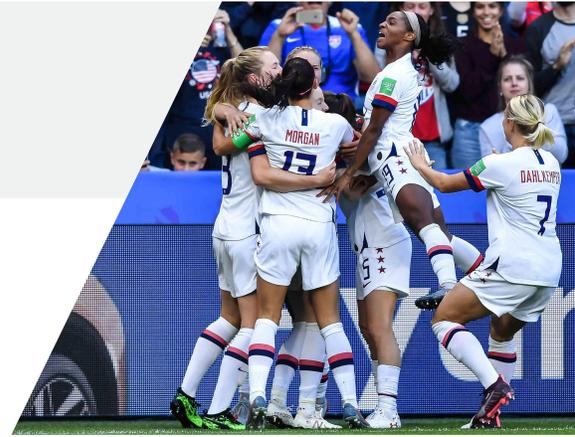
U.S. Soccer's sports scientists use Tableau and Power BI to perform simple data analyses and a combination of Python, R, and an SQL Server for more complex, multivariate statistical modeling. Smartabase enables them to easily target and export information. "Let's say we want to do something extremely specific with a piece of data, or a combination of three or four data points or types," Cost said. "The only thing we need to do is jump into Smartabase, get the data out, and write a miniature script so we can do some kind of analysis on it. If we needed to take that piece of data out of four different carriers, it would take us so much more time."



The Impact



We're able to do more with the same amount of resources, and all the data is available. I like things to be extremely simple and findable, and Smartabase serves that goal very well.



Even an organization as continually successful as U.S. Soccer has to maximize the productivity of a relatively small staff that includes a sports scientist focused on the Extended National Teams, and heads of performance for both the USMNT and USWNT. As such, it's essential to find tools that reduce manual effort, consolidate information, and make it readily available.

"The main thing Smartabase does for us is being more time efficient," Cost said. By combining each player's GPS data from their club and daily metrics gleaned from STATSports during National Team camps, U.S. Soccer's performance staff is able to take a comprehensive view of load monitoring via Smartabase. "That gives us a lot of historical data on benchmarks, individual needs, and status," Cost said. "It delivers a ton of information."

On the medical side, automating the collection of pre-camp questionnaires and other documents is helping U.S. Soccer standardize its player management process. "Compliance hasn't been great, especially for the Youth National Teams," Cost said. "But we're stepping up because once they download the app, players can send in their information or go to a medical practitioner or anyone

else who needs to fill in the document. We definitely benefit from the new situation where we're able to collect data through the app."

Gathering test results and match statistics from promising junior players across the country in the centralized Smartabase repository is also helping U.S. Soccer create more in-depth profiles and better development pathways. These take into account what a player's physical status suggests about the age level they should be competing at, track their maturation, and predict their potential in different positions. "Every piece of the puzzle will have a relative soccer age and a linear age," Cost said. "That's why we do these tests and are trying to get all these pieces of information in the right place."

Cost also imagines a future when an AI system might be able to do all the work needed for a research project. "But until then, Smartabase makes our lives a bit easier because everything is in the right location and we need less people to do the front work," he said. "So, we can start on the things that actually matter and change our sport at the baseline."

About

 **SMARTABASE**

Smartabase

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A global company founded in Brisbane, Australia in 2003 with international headquarters in Colorado and London, Smartabase is a global leader in using data to optimize human performance. As a performance and analytics platform, Smartabase is the source of truth for national sporting federations, Olympic committees, many of the world's highest-profile sporting teams, military research and operational wings, and performing arts organizations. For more information, contact us at sales@fusionsport.com.

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