

How Google Cloud is supporting England with real-time tournament intelligence and multi-continent collaboration





On 17 June the England Men's Football Team will kick off its first game in this summer's global football tournament in Dallas against Croatia.

It will not only be the start of the England Men's Team's campaign to win the tournament for the first time in 60 years, underlining the footballing challenge ahead, but it will also be the start of England's involvement in the biggest, most complex version of this tournament ever.

It is the biggest in every sense – the most teams playing (48), more games to win to reach the final, the greatest distance, covering three host countries and five time zones.

The logistics are immense and it may be the teams that are most able to cope with this level of complexity that will be best placed to win the competition.

This is the first major tournament for Thomas Tuchel as England's Head Coach. However, many of his players – it's Harry Kane's third time competing in the tournament for example – and support staff have a wealth of experience when it comes to this pinnacle of football. The behind-the-scenes support is a vital element to England's campaign. The combination of individual expertise, organisational experience and technological support coming together in North America this summer will, hopefully, result in a highly successful tournament for England.

Balancing the known and the unknown is crucial heading into this competition – in particular, preparing for the myriad unknown possibilities in the best way. It is here that the intersection of technology, data and expertise matters most – and where Google Cloud plays such an important role, acting as a backbone to support all the data inputs and analysis required to support the team.

Using predictive modelling for the initial group stage

England will be training and acclimatising to the heat at its preparation camp in South Florida for the first 10 days. But then the team heads to Kansas City where its base camp is located. This is a case in point of how predictive modelling has helped inform decisions. Kansas City was chosen because – although England aren't playing any group games there – it is well placed to be equidistant to almost anywhere the team might compete.

Having a base camp has proven a good strategy for England teams previously, so The FA was keen to retain that model. It means the players and coaches will fly back and forth to the venues while the kit and equipment will travel as road freight, no small feat in a country the size of the US, never mind that games could also be in Mexico or Canada.

Wherever the games take place, high-speed connection to the St. George's Park team in the UK is essential. This level of connectivity will allow the US and England support staff to work together. This tournament will be a round-the-clock operation with the time difference working to everyone's advantage. For while the US sleeps, the St. George's Park team can be analysing the match data and doing preparation work on England's next opponent. It means when the US team wakes up, they will have that analysis ready and waiting. It also means terabytes of video, live streams, intelligence reports, data and training sessions will need to be shared seamlessly between continents.

Partnering with Google Cloud for success

The FA started working with Google Cloud in 2019 to find a better way of managing and accessing the varied and disparate data streams it was trying to collate, analyse and use effectively – so that it could best serve the coaches' needs. As the data collection improved and expanded, the way it was processed and accessed needed to mature to answer a coach's questions quickly and effectively.

Mark Jarvis, Head of Men's Performance at The FA, is responsible for creating and managing the performance plan around major tournaments for the England Senior Men's team. He explains: "Football is a very data rich sport. There are lots of third-party providers supplying data on virtually any questions – both on our performance and the performance of others. Whether that's physical performance metrics (such as distance run, accelerations and decelerations) or technical, tactical analysis of games; it's about bringing all that together to make practical use of it, to answer genuine performance questions, rather than just drowning in data."

"Historically, physical and performance data has been quite separate. It's only when you bring that data together that you can draw out genuine insight, rather than abstract facts."





The growth of those data streams has been exponential. In 10 years, it's gone from co-ordinates of a player on a pitch to today, tracking 25 times a second, with 10,000 markers from a player's body. Google Cloud pulls all that data into one place and organises it – working with England's bespoke system software Helix, also built on the Google Cloud platform. The Helix system integrates technologies and datasets on Google Cloud to achieve real-time monitoring. With the help of Google Cloud, The FA can aggregate more data faster, to get to the key performance insights quicker.

Gerard Moore, Head of Performance Analysis at The FA, is at the forefront of this: "The efficiency of our decision making is going to play a massive part in this tournament. Even FIFA have said it's the hardest World Cup to win. So, we are using our Helix system powered by Google Cloud to help us gain an advantage by bringing the vast amounts of data points together in a short turn around, allowing us to be agile in our work."

The FA also uses the file cloud platform Lucid Link to access and edit large, shared files instantly from Google Cloud without any download or syncing lags. It means The FA has one secure global workspace for real-time teamwork even with people split between the UK and the US.

"This cloud platform means we can access analysis work instantly, regardless of where we are. It enables us to continually support our match preparation," adds Moore. "Google Cloud and the use of Lucid Link, allows us to be more collaborative sharing information instantly across our network of staff, to help us have the best chance of winning these games and be adaptable."

England squad coaches have an added layer of complexity in that club playing conditions and performances can differ considerably to the conditions players will experience competing for England. Jarvis explains: "On an individual basis, you want to know what each player's loading through the season looks like, and what that would look like compared with what they're likely to have to do with England. Because sometimes the club will play in quite a different way or have a different challenge. For example, if you're a defender for a club that's dominating, your game's probably going to look quite different to a defender in a club that's struggling and where they're doing a lot more defending."

And then there are unique factors to the upcoming tournament that need to be considered such as the heat. "You don't just reduce everything by 15%. If your game model in cooler conditions requires certain characteristics and certain amounts of running, if some aspects are reduced, does the game model still stand up? Do you have to adapt the game model rather than just playing the same way but doing a bit less of it?" says Jarvis.

Assessing the opposition

The detail of the England players' performance data is already considerable but then the opposition team's data must be added into the mix. Moore explains: "We have a process to collect information, particularly video clips, on our opposition. Our analysts can add context to that information. Google Cloud helps us share data and videos to help us best understand our upcoming opposition. We can then collaborate across sites on this information and bring it to life to inform our coaching team and players."

"We are also using some of the Google Cloud tools to scrape the internet for soft intelligence using AI to look at news and relevant tournament and team information."

The speed of information processing is vital

Different situations call for different reaction times. Some analysis must be produced faster than others. While squads are known, the exact team line up isn't announced until 75 minutes before the game so surprise selections could impact plans. Similarly, post-match reports need to be produced for coaches as soon as the final whistle is blown so they have the relevant information when speaking to players.

Google Cloud enables data to be synthesised and condensed faster than ever. What used to take five days in previous tournaments, with Google takes five hours – and that will be translated by analysts and staff members into a five-minute conversation with a player that might impact five seconds of play on the pitch.

There's a reason the data and performance analysis are more vital than ever this tournament – it's the densest England has ever performed in. As Steve Kemp, Head of Physical Performance for the England Men's Team says: "For any team to be successful, they are going to have to play eight games in less than 40 days. And that could amount to over 750 minutes of football to win. Even with Champions League and Premier League football, they don't tend to go to extra time, and they don't tend to be against progressively more difficult opposition."

"Players at this tournament will need to be at their peak physically. The environmental challenges are also in the mix with temperatures over 30 degrees centigrade, and games in Mexico played at altitude."



The other 22 hours

The hub at St George's Park will watch all the games and give insights and analysis of how the team performed including how hard they worked in and out of possession. It means the coaching staff can understand what the physical – and mental – cost of each game has been, to help inform recovery. Fatigue can be physical or mental; it will look different for a player performing in every game to one not, and recovery plans and nutritional behaviours will vary between players.

“Now, with wearables, we know about sleep and the importance of recovery in the 22 hours they're not playing,” says Kemp.

Recovery was a big part of the decision to pick Kansas City as the base and limit the team's travel time. Not only do the players have more opportunity to relax and bond in a fixed location but by staying in Kansas, travel time is around 45 hours (compared to over 60 hours in Russia 2018). The mental and physical cost of travel is significant, not just for the players but also the staff.

Kemp says the base also allows for valuable soft intel that comes from the conversations and closeness of the team – to understand how connected they are as a group and how players are recovering.

“The players can't feel that they're slaves to the data. It supports our decisions; it doesn't make our decisions. We've got some of the most technically gifted coaches in world football and some of the most technically gifted players. So, we're looking for this just to support them,” says Kemp.

Team collaboration is at the heart of all sports success – both on and off the pitch. By partnering with Google Cloud, the England team will have instant, real-time intuitive data insight to help maximise the players' performance. And this fast-paced, frenetic competition will require unprecedented levels of data – skilfully blended with the coaches' subjective, expert input – from both sides of the Atlantic, faster than ever. Combined, it puts The Three Lions in an optimal position for this tournament.