Case study

United Kingdom | Sport & Entertainment

Digital velodrome for Newport Live benefits athletes and local community

Client profile

Newport Live provides sporting, leisure and cultural activities in Newport to support the health and wellbeing of people in the city and beyond, inspiring them to become happier and healthier. They operate seven venues including the Geraint Thomas National Velodrome of Wales.

One of five indoor velodromes in the UK and the only indoor velodrome in Wales, the Geraint Thomas National Velodrome hosts track cycling from beginner sessions to national and international competitions.

> **'Building a truly digital velodrome that inspires future generations,** while supporting world class cyclists and resident's health and wellbeing.'
>
> **Steve Ward,**
> Chief Executive, Newport Live

Summary

Newport Live wanted to create the velodrome of the future where technology improves the performance of athletes, whether they're professionals, or amateurs from the local community. A digitized velodrome provides athletes with vital information on their physiology to aid performance on the track. A combination of real time data such as telemetry and detailed biometrics leverages IOT and sensors to inform training, competitions and even world-record-breaking attempts. Information such as riders' real-time location on the track, their heart rate, power, and calorie usage, are now all available on an interactive dashboard.

Vision

Why Newport Live implemented a digital velodrome of the future

Newport Live wanted to create the velodrome of the future where technology improves the performance of athletes, whether they're trained professionals local enthusiasts. The Geraint Thomas National Velodrome is utilized 99% of the time by the local community and is believed to inspire health and wellbeing among people. By leveraging our learnings from the Tour de France, digital technology has the ability to add a new dimension to Newport Live's business and to their local citizens.

The Geraint Thomas National Velodrome of Wales is one of five internationally recognized indoor tracks in Britain. The velodrome played host to the Team Great Britain and Paralympics Great Britain training camps ahead of four previous Olympic and Paralympic games. The velodrome is part of a sports complex hosted by Newport Live, which also includes a gym, swimming pool and sports halls, which are used extensively by the local community.

James MacDonald, a British endurance athlete, wanted to attempt to break the 24-hour non-stop cycling world record in the velodrome. He wanted to use technology to make informed decisions about his physiology and push himself to the limit. To accomplish this, he approached NTT and Cisco with the idea of providing his performance team with vital data about his physiology during the attempt, and we, in turn, approached Newport Live.

An ambitious team in Newport forged a partnership with NTT and Cisco to support MacDonald, refreshing digital infrastructure with sensors, wireless and IoT technologies. By digitizing their velodrome, a legacy has been created, helping international athletes push the limits of their performance, while also improving the health and wellbeing of the local community.

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Which technologies?

- Insight analytics platform
- Meraki Wi-Fi solution
- IoT sensors
- Indoor 3D tracking

Which services?

- Consulting Services
- Technical Services

Which partners?

- Cisco

'The digital velodrome brings the next level of innovation to indoor cycling, allowing athletes to optimize their training on the basis of real-time data.'

Steve Ward,
Chief Executive, Newport Live

Transformation

How technology improves the performance of endurance athletes

To digitize the velodrome a bespoke, layered solution was implemented, which combines components designed for road races such as Tour de France and those developed for indoor events. These include real-time telemetry and analytics, such as speed data overlaid with physiological telemetry including heartrate and power output. The larger velodrome facility was equipped with Cisco Meraki Wi-Fi, a WAN performance management solution. The digital velodrome was created and tested over a three-month period.

Equipment was installed in the velodrome, including Wi-Fi in the ceiling as well as positioning technology embedded within and under the wooden track, and on the inside of the glass barriers. During the installation, the team had to adhere to the rules of the Union Cycliste International, the world's governing body for cycling, which state that objects can't protrude past the edge of the track as this could potentially cause injury if a rider falls. Challenges during the installation meant that the team had to adjust and adapt the solution to ensure that it worked, while adhering to the rules.

The velodrome now boasts 3D tracking. Athletes and performance coaches have accurate track location, speed, and cadence information from bike sensors and biometric data from rider sensors. All of this data is displayed in a real-time dashboard, providing end-to-end performance data in a single view.

Results

What a digital velodrome provides for cycling and the local community

Newport Live's digital velodrome brings the next level of innovation to indoor cycling. International athletes, like James MacDonald, and their support teams can utilize the data to improve their performance. MacDonald's latest world record attempt provided the impetus for the digital velodrome project. Athletes are able to view their results in real time, as their coaches can observe and communicate with them either in person or remotely. After this record breaking attempt, a legacy was left behind for the local community, as amateur riders utilize consumer-grade sensors on their bikes to leverage the digital solution and obtain useful insights about their performance.

Newport Live is now empowered with a true digital velodrome experience, leaving behind a legacy for the local community. Traditionally, riders could only obtain information about their speed through timing chips installed on their bikes. Riders can now use consumer-grade sensors and easily leverage the digital solution to obtain a holistic view of their performance.

Support teams have access to data such as an athlete's exact location on the track, as well as information on heart rate, speed, cadence, calories consumed and power output while athletes are riding. The goal is to analyze the live data from the sensors in real time, enabling support teams to make strategic race decisions such as fueling or the optimal line to take. This is then used to improve an athlete's performance during a race or training.

Having data and information clearly visualized helps support teams make the best decisions for their athletes. Now there is a greater understanding of performance around the entire track and not just at one point.

The Cisco Meraki network and Wi-Fi solution also proved to be the perfect solution for the velodrome. The solution can be expanded to provide other business use cases, such as offering physical security to the venue, as well as insights on how people navigate the velodrome, allowing them to segment and improve interaction with their customer base.

Through embracing technology and starting their digital transformation journey, Newport Live has not only become an innovator in their industry, but they can now better serve the local community through the enhanced opportunities they provide. Newport also have wider ambitions for this smart, connected service, such as extending it to dementia care centers across their local authority.

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