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## How Output Sports uses data to fuel athletic performance

### Using wearable sensors and advanced electronics Output Sports brings new unprecedented efficiency to improving athlete performance

With gyms and training grounds remaining closed in response to the Covid-19 pandemic, athletes and coaches are increasingly turning to companies such as [Output Sports](#) to help them to optimise their remote training programmes.

Output Sports, a UCD sports technology start-up headquartered at NovaUCD, has developed Output // Capture, an end-to-end solution that can test multiple components of athletic performance and track training programmes with a single wearable sensor.

In March the company announced that it had closed a €1.3m seed funding round.

In 2019 Output Sports was named 'Best Early Stage' company, at the Dublin Final of the 2019 InterTradeIreland Seedcorn Investor Readiness Competition.

The sports technology market is rapidly growing and is projected to be valued at more than €25bn by 2024, with Output Sports hoping to be at the centre of the market's growth.

### Working on the core

<https://www.youtube.com/watch?v=t5sDOYKo-VA>

"Athlete testing and tracking currently involves the use of cumbersome, bespoke equipment that measures a small subset of fitness attributes," said Output Sports' co-founder and CSO Daragh Whelan.

"At an elite level, this makes testing and tracking resource-intensive from a cost and time standpoint. This means strength coaches and medics working in a high performance environment are unable to spend time doing what they want-coaching and rehabilitating athletes. At a sub-elite sports level, many of the existing technologies are prohibitively expensive and impractical. This means practitioners become reliant on subjective analysis which is often unreliable and inaccurate."

Output Sports technology spans the intersect of the sports player tracking and performance and sports wearables market. Recent reports indicate that this market is a multi-billion-dollar industry and growing at a rate of between 23pc to 50pc.

“Following the outbreak of Covid-19 it is highly likely that practitioners will be looking to implement portable and cloud-based performance tracking solutions, which Output is ideally positioned for.”

## How it works

Output Sports is an end to end solution to not only test and track sporting performance with laboratory grade accuracy but also integrate this data to allow for improved training programs, injury risk stratification and talent identification. [Output Capture](#), consists of a single sensor solution capable of testing an athlete’s performance profile (strength, power, balance, speed, mobility, etc.) and track their strength training and rehabilitation.

“It is like a Swiss Army Knife for strength and conditioning and physiotherapy,” Whelan explained.

“Output Hub amalgamates this data and allows for data visualisation, report generation and programming so that practitioners can leverage this data to optimise athletic performance.”

## From the lab to the field

Output originated from PhD research completed by [Dr. Darragh Whelan](#), [Dr. Martin O’Reilly](#) with [Prof. Brian Caulfield](#) in the [Insight Centre for Data Analytics](#) in UCD. This work investigated how wearable technology could be used to augment strength training and injury risk assessment and modification.

Martin, a sports and exercise engineer, became interested in the space by developing wearable solutions to augment his own strength training. Simultaneously, Darragh was making return to play decisions on subjective evaluations in his role as a sports physiotherapist and saw wearable technologies as a ubiquitous method of objectively measuring performance.

[Julian Eberle](#) joined the team as co-founder and CTO in May 2018 and had experienced the issues Martin and Darragh’s research was looking to address in his role as a national Olympic Handball player.

## A fighting fit start-up ecosystem

“Output has received fantastic financial and business development support as they transitioned from research to a product offering,” said Whelan. “The science underpinning Output Sports was

supported by Science Foundation Ireland and the Irish Research Council. Following this the team were awarded an Enterprise Ireland Commercialisation Fund which allowed for market discovery, prototype development and iteration based on feedback.

“Throughout this time Output liaised closely with [NovaUCD](#) and EI to help commercialisation of the intellectual property arising from the research. These supports were invaluable to the team as first time entrepreneurs to help support and guide their work.”

As mentioned, [Output closed a round of €1.3 million in February 2020](#). The round was led by the Atlantic Bridge University Fund, with Elkstone Partners, Enterprise Ireland, and angel investors, John Hearne and Leinster Rugby players, Adam Byrne and Dan Leavy.

“This seed funding will support the company’s commercial strategy to expand Output into the elite and sub-elite sports markets in the UK and Europe and to build on key partnerships already established in the US. They plan to raise a Series A to allow for expansion in these markets and into the recreational athlete space.”

## **Working out with customers**

The biggest lesson so far in building a business has been collaborating with clients. “It’s vitally important to make sure what you are building will help your customers.

“To do this you must engage with the market early and at all times throughout product development. Don’t be afraid to get your product out there and make sure you’re listening to feedback to ensure you’re building something the market requires.”

Whelan’s top tenets for start-up success:

- Surround yourself with great people and excellent problem-solvers
- Don’t lose sight of your motivations for working in an area – this is especially important when times are tough
- Be open to learning new skills and don’t be afraid to jump in at the deep end!
- Have a good work life balance

## **How Output stays agile**

According to Whelan, Output uses a wide variety of technology and tools to help develop, monitor and gain insights at both a technical and commercial level.

These include Airtable, Jira and Slack and these have become increasingly important as the team transitioned to remote working during the Covid 19 period.

“However, it is important acknowledge that all technologies only provide a method of capturing and recording data. What you actually put in to these tools is far more important than how they operate!”

**Main image at top: (left to right) At the UCD Institute for Sport and Health are; Dr Darragh Whelan and Dr Martin O’Reilly, co-founders, Output Sports; angel investors and Leinster Rugby players, Dan Leavy and Adam Byrne; and Julian Eberle, co-founder, Output Sports. Image: Damien Eagers**

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