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## INSPIRATIONAL INNOVATOR INTERVIEW TRANSCRIPT – ROY HOTRABHAVEN

*This interview took place during summer 2020 as part of SIE's Festival of Innovation. The video of the interview can be watched in full on the Scottish Institute for Enterprise's Youtube Channel. ([youtube.com/scottishinstituteforenterprise](https://youtube.com/scottishinstituteforenterprise)).*

[Music]

**QC (Quentin Cooper)**- Hello everyone welcome to the third of these Imagining the Future interviews as part of the Scottish Institute for Enterprises, Festival of Innovation. I am Quentin Cooper and it's my pleasure to be with you, if you're watching this live you've joined us on a very auspicious August day because exactly 29 years ago today the world wide web debuted as a public service on the internet after Tim Berners-Lee rolled out and introduced the world to the whole idea of the world wide web. If you're not watching us live, obviously that date stuff doesn't apply but hello anyway don't worry about the date significance because today it's more about the data significance. In about a minute or so I'm going to be chatting with the co-founder and CEO of Sports Data Company Player Data Roy Hotrabhaven. Now what he does, how he got to do it, how he's hoping to do it, more of it and better; should make for what I think is a really fascinating conversation but it's also one that you can all be part of too because we're going to have time at the end for your questions and your comments and you'll see that little box in the middle bottom of your screen Q and A. You probably know by now just go there put a question, put a comment, you can do that anytime, we'll gather them all up and we've got Scott Mckellar here from SIE who's going to then feed us back to us at the end of the day. Right all clear? Then we will crack on and say hello to Roy Hotrabhaven, who joins us from where are you joining us from Roy?

**RH(Roy Hotrabhaven)**- Del Keith Scotland

**QC**- Del Keith marvellous! Now we're going to get on to your particular story in a moment but I think we probably ought to begin by saying a little bit about sports data because obviously there's all kinds of sports data out there and league table is sports data the height of a centre-back is sports data what are you interested in?

**RH**- We're interested in biometrics, we're interested in body positioning, heart rate, temperature, technique, things that we can help athletes train and use to improve their performance. Anything around that we're not too interested in the whole, we'll call it more, metadata side of things around the league tables and the scores but we're looking at the athlete and how they're performing.

**QC-** So are you more about getting reliable biometric data or are you also about analysing that data?

**RH-** Our core thesis as Player Data is both of those but the core goal is to build the best user experience possible so to present the user with the easy easiest digestible easiest and digestible information so that they can use that to improve.

**QC-** Yeah there's no point presumably getting a load of figures and only if you've got a calculator and 14 hours and a professor of physics with you can you explain that actually this is what you need to long jump two centimetres further.

**RH-** Exactly! Now obviously you can get a lot of data on athletes remotely you can do that by making measurements before the event, you can film them or but if you really want to get key data you need to have stuff on them. You get what they are doing as they are doing it and that comes down to wearable technology and that's where when we founded three-four years ago now. That was the core vision. All your wearable devices out there: your apple watches, your Fitbits, they are wearables but they give you a very small piece of the data. They gave you your heart rate, your speed, your acceleration and it was very difficult for the athletes to actually use that data to improve the performance because they couldn't analyse the biggest thing that affects performance which is your technique. So what we did is built sensors that are woven into the garments themselves that will take your body position display in 3d and we can analyse that and now we have your technique to analyse process and tell you how you can improve.

**QC-** But presumably you've got affection what you cannot have in a kind of **heisenbergian way** you can't have the act of measuring interfering significantly with the performance otherwise no athlete's going to wear that stuff even probably in training

**RH-** Absolutely I mean that is where we come back to user experience. User experience does not just cover the user consuming the data and understanding the data; it includes and covers how the athlete interfaces with the product, it must be seamless and not interfere with the user. So, we spent a lot of time working such that the sensors are woven in the garment such that when an athlete puts on the shirt, they don't notice the difference.

**QC-** So there is a diplomatic element to this as well. So when you've got that tech, what sort of things you can you can measure? Almost anything presumably. You have then got to distinguish between things that seem important and things that actually aren't. It could initially be something about posture but turns out to be much more significant than something about I don't know aerobic capacity.

**RH-** Yeah so the metrics that we highlight are done on a sector by sector basis. So I'll use one of our upcoming products as an example; we are working on a product in cycling whereby an athlete will be wearing one of our motion capture shirts, in cycling the biggest thing they care about is anything that will affect their power output and how the power output translates to the wheel. One of the things that we can do with that technology is look at drag and how the body and the body position correlates to the drag in real time so with cycling we use our technology to estimate drag for the athlete and inform them in real time whether they're in a high drag position so they can correct it with other sports we'll be focusing on different things.

**QC-** What happens when something you're telling an athlete conflicts with something that their coach or trainer is telling them because obviously you're only of use if you're telling them something in addition to what a coach or trainer is? If you're just backing them up you're not gaining but if you're contradicting them you're running into conflict

**RH-** That's a really good question, we haven't had too many examples of that so far because we very much work in partnership with the coaches to make sure that we're all on the same page and we really present our data from the viewpoint that this is data and the work is a coach's job and responsibility to try to interpret it and take action on it and we're not trying to replace the work share we're trying to work with them and arm them with the most data possible so the coach can go to the athlete and educate them. Look you were slower in this sector because your body position was like this and to improve that you need to make XYZ adjustments.

**QC-** What about variables? It must be harder to measure because they're not taking place during the performance but if you've got an athlete who has a natural great body but they're actually up half the night playing Playstation 4 games, that's going to have a serious effect on their performance.

**RH-** We actually capture that side of things as well. So we built a wellness sort of recording program which allows coaches to customize a survey that they send out to the athletes that fill in every morning of it and rate: how well did I recover from the last training session, how well did I sleep and we get all those metrics and we can compare them to performance output. So we capture the sort of mental side of things which is largely overlooked as well as a physical to get a complete picture.

**QC-** Then presumably you've also got to get that information to them along with what the coach is saying, the sports nutritionist is saying, the team manager is saying and what the medical team is saying on they're level. How do you make sure that yours is phrased in a way that it will be easy to be appreciated and interpreted and acted on by the individuals ?

**RH-** We haven't solved this problem in particular yet because we go through the coaches at the moment so we present the data the coaches and it's the coach's job to act on it. This is something we're actively doing research in: how do we present athletes directly without confusing them and creating a potential conflict between the coach and the user.

**QC-** Now we've kind of raced, it's entirely my doing, but we've kind of raced straight to the finishing line here and got to what this is all about but I want to take you right back to the starting blocks and where this all began. This is Edinburgh university, eight years ago, so what were you up to and how did this come about?

**RH-** Oh god that is a long time ago. University in 2012 to do Computer Science Electronics and at that point in my life I'd never done a sport in my life before, I came from Thailand where it's very hot and I'm proud to say I was a typical geek stayed inside read books and play video games. Joined university and had the opportunity at the sports fayre to pick something and try something new so I worked down the list alphabetically, American football wasn't for me so I picked archery and I fell in love with it. Absolutely fell in love with it, the only problem was I was rubbish and because archery is a niche sport there wasn't that much help around to help me improve. So I wanted to see if I could leverage my skill in computer science electronics to see if I could do something and build some sort of sensors that would help me improve my performance. So I embarked on that journey a year and a half two years down the line I've been training myself and progressively building a system that would give me feedback to my performance and I would use that to train myself and I had done so successfully with it that I went from a beginner to competing internationally for Scotland and competing internationally for Thailand, my home country. I was almost on track to go to the 2016 Olympics for Thailand.

**QC-** This was extraordinarily fast progress from I don't know one end of a bow from the other, I mean nearly in the Olympic squad!

**RH-** Yeah it didn't feel out of time, two years this is a long time at that point but unfortunately I didn't get to go as there was a car accident but that's another story and I didn't get to go to the Olympics. So at that point I was in my final year university, I went well nobody's ever going to believe me, I'm only one data point it could be a fluke. So I took what I built and picked a complete beginner someone never picked up a bow and trained her using the tech she went from never having picked up a bow to competing for Scotland in six months beating my own record. That's when we realized two things: one there was something here and would hit on you know something that could potentially help a lot of people and two there's no money in archery to commercialize it.

**QC-** So we it's probably worth saying who "we" is, because this is Hayden isn't it? Your other co-founder.

**RH-** Yeah so Hayden, we were on a course together electronics and computer science and because it was a very specific course only 10 or 13 people on the course so he and I had become very close friends over the years. It happened that Hayden was working on something different but still in the wearable space at the same time as me, he was working on an ECG monitoring suit so we decided okay let's combine the two they're a natural fit for each other and we've been doing that ever since.

**QC-** And at what point did you begin to realize hang on, you've figured out it doesn't just work for me in archery, it can work for this other woman as well. When did you begin to think hang on and not just archery and not just individuals and begin to realize the full scale of the potential of what you were doing?

**RH-** It started when I started to explain to more outside people the core technology that we built, motion capture sensors built into clothing allowing to you to capture a 3D model and then these people will just without any prompting would go: oh you could use that in running to locate gate, oh you could use that in rowing to look at that. That's when we thought we're on to something, there is a lot of markets that we can go into with this technology we haven't pitched anything yet and decided to look at a few of them to see what we could we could do.

**QC-** It's always the way when you're talking to somebody at the point where they've got a success story behind them it always seems like a logical and natural progression but there was a lot of long hours, there was a lot of blood, sweat and tea involved in getting to where you got till you I think left your masters I think to focus on this full time?

**RH-** Yeah there came a point whereby I was halfway through my masters and we had an offer of funding from a group of investors of £250 000 to kick start the business, Hayden at the time was working at free agent full-time as a software developer and we went well, we've got the money on the table to do this, we've got some security here do you want to do it and we haven't looked back.

**QC-** You haven't looked back but you nearly went back, because I think in 2018 you reached a point that you thought might be the big chance to showcase this to the world but it did not go so well?

**RH-** Yeah so that was the Women's world cup in at the end of 2018 was where we basically started working from a year after receiving that initial investment on B1 of platinum's product and we decided okay we could do something good and also showcase our technology in one go by partnering with the Women's world cup who are also based in Edinburgh and they had their event in Mexico that year so we decided we're going to use our technology to live stream data from the athletes to the spectators and create a much better spectator engagement. Spent a year developing the technology and tested it in Edinburgh worked fine, weren't perfectly flew to Mexico and it didn't work because so because of the technical reason for why it didn't work was that a lot of people and a lot of people using wi-fi meant that our units just couldn't connect to wi-fi right, we didn't have the

bandwidth and what happened was we didn't design the product such that it could not work live so we ended up kept collecting very little data and that was a complete disaster at the time but also it unearthed quite a couple of issues that would have bitten us if we were to take that product and scaled gone to market started selling, this problem would have come about anyway in about a years time and we would have to fix it.

**QC-** You thought you were ready to go to market and actually this showed you, you weren't so there isn't there is a big positive comes out of this but in a very hard way.

**RH-** Yeah so at that point we had six months runway left and we went well we kind of have to rebuild the whole product in six months there's a time box of it and it was a sort of do or die moment for Player Data. If we didn't build it in six months, that's it we wouldn't have gotten any extra funding. Why would we? We didn't have a product and it was very tough six months but I'm pleased to say that we came out of it a lot stronger and it was the right decision to make as well because we could have gone look we'll just kick the can down the road and ship a product that will have issues down the road but it wasn't the right thing to do.

**QC-** yeah anything else with hindsight that you learned the hard way that you wish somebody had been able to kind of tap you on the shoulder in 2012 or 2014 and say do this or don't do this?

**RH-** oh it's the thing with these sorts of questions, is that there's a lot of little things that you learn along the way but there aren't any big things that come to mind. There's a lot of little things around how do you very menial things, like how do you file tax return, how do you do the accounts, how do you present to investors, a lot of things that you will learn along the way that will become part of your skill sets. At the time it actually feels like quite a big thing is because it's unknown to you as an entrepreneur so the only advice I could give to that is stick it through there are lots of people you can ask for advice and help and people have gone through this journey before and can advise. It may be the first time for you, but others have tried this path already so don't be afraid to go to people and that's what SIE and other organizations can help with it.

**QC-** Now if you look at your website it says our mission is to provide affordable technology that enables teams to train like professionals. I am intrigued as to why you decided to focus on teams rather than individuals and why you chose to focus on amateurs clearly rather than professionals?

**RH-** The first part of your question: we started to focus on teams because as a small team ourselves we realized that going business to business would be a lot easier from a support perspective than going business to consumer directly. The simple math of it is that a team has 20 players but your point of contact is a coach so we can get 20 players but we only have to deal with the coach from a support perspective and it makes a lot easier when you're growing and you're going through the scale-up phase of where you're going to have teasing problems in your process to deal with it and

manage expectations of clients. The second point was something that I'm really passionate about actually coming through up through archery; so when I was coming up through archery I saw the divide between the haves and the have nots in sports so as you go up the scale you get progressively more and more support and more and more technology and I wasn't really happy with that because the elite have all the toys to play with whereas the amateurs who have the same passion and drive have a higher barrier to entry because they don't have that level of support. We focused on building Player Data as a technology for all outfits whilst building a sustainable business model that will support me and my team we wanted to make our technology accessible financially and also from a data perspective easy to use and understand.

**QC-** But if you're actually now in this sector and it's an unusual city to be in in order obviously to partly to make money sport's an odd one because there are millions of people participating in sport and organizing things doing it for nothing or next to nothing and at the other end of the scale there are people making millions of pounds and millions of pounds floating around in elite sport so trying to come up with the right kind of funding model must be tricky?

**RH-** Yeah it was quite difficult to get the pricing model such that we could capture as much as possible whilst building a sustainable business for Player Data. A lot of it I think that approaching this problem from a student's perspective was one of the things that got us there. Myself and Hayden when we started player data we operated on a shoestring, we had 50 quid each and we started with a whole budget mindset and that whole budget mindset translated through the whole process of up building up Player Data is that we're going to keep costs low, we're going to we're not going to spend on frills, we're going to make the product as successful as possible we can we can do x y and z to keep the cost low and that's how we've achieved that.

**QC-** Right but you were never at any point tempted to think, well why don't we direct this where the big bucks, are we're going to go and offer our services to a I don't know a Premier League team or whatever else it is. They're going to pay us 2 million pounds and we're going to slightly improve the number of points they gain over a season I mean you know new manager at Rangers Steven Gerrard, he might have snapped you up.

**RH-** It does not fit with what we want to do, doesn't fit with our vision. I mean we want to cater for amateur sports all the way to elite and we can still cater for elite we'll charge them the same thing that we charge the amateurs but because the elite guys have bigger budgets ourselves to them is look instead of getting 10 and just kitting out your first team and your second team for the amount you currently pay, spend that money and kit out your entire squad down to your academy and you have full data coverage. The model works from amateur to elite for us and then so where are you at now, what sort of what scale are we at and what's looming on the horizon. This time last year we were four people and about a couple weeks ago we celebrated our third birthday and we are now 14; so a team of 14 and we started selling our D1 product in January and we're now up at 30-40 clubs sold to this year and we're looking to launch our first individual product in partnership with a large garment manufacturer sometime next year. We're very much looking forward to expanding

into team sports because we're targeting amateurs to semi-pros is a much larger market for us to go and help and we look to expand through the rest of Scotland down to England.

**QC-** Now I'm going to throw it open to questions and comments in a second but just a couple of last ones from me I have an old saying of mine which is: nothing blunts like the cutting edge, are you aware either the fact that you can't ever rest on your laurels you've got to keep looking at new technology because there'll be somebody else who's doing what you do and coming in trying to do it more?

**RH-** Always aware and the way that we tackle that is we constantly innovate across the technology stack at Player Data from a software and a process perspective but also at a hardware perspective. It's a lot harder to innovate on the hardware because that usually takes a lot of time so what we've done is that we've started bringing on interns from Edinburgh university who are passionate about this, to start looking at projects that may not land for another year or two years but they're starting to work on it they're starting to learn about it and it's been it's our way of keeping ahead of the curve whilst being able to be the main development team being able to fully focus on what we're offering at the moment and finally for me as well as the technology.

**QC-** What is it you think you do well that maybe other start-ups don't always remember to do? it's like last week we were talking here and to Suzanne Mitcheke from Citrus Labs and she said they were very good at listening to what customers want rather than telling them what they thought they should need.

**RH-** We are, we also pride ourselves on knowing our customers intimately, knowing what they want knowing what makes them tick. but I think the thing that's helped for Player Data over the last year so quickly is our internal process and how we operate; we focus very strongly on building a very developer friendly environment somewhere where we can innovate quickly, safely and deploy quickly to customers. That has allowed us to take on five or six engineers in the last year without taking a complete hit from our output and we've had actually developers come from much larger tech companies with hundreds of employees come and look at our internal infrastructure and process and go wow you're a team of five and the last place didn't have this everything is automated here. We very much focus on getting our teams to only focus on the hard problems because that's where they should spend their time and clearly from your backdrop today as you talk you're still able to work away even when you're at home so you're always struggling to improve things.

**QC-** Now I'm going to hand over now to Scott Mckellar Marketing and Comms Manager at SIE and he has been harnessing and gathering your questions and comments as they've been coming in and we're going to squeeze in well at least a few of them before we run out of time. Scott?

**SM (Scott Mckellar)**- Yeah we don't have a terrific amount of time left so I'll fit in as many questions as we can, so jumping right in one of the ones we've had in was: Roy what are the key components of the Player Data team you mentioned it's a team of five going up to team 14 but is it data scientists, is it sports knowledge experts, physio, AI?

**RH**- Every member of my team is important to the company and our success but the most important people to our process is our chief account manager who is also a sports scientist who captures all the customer side of things; our designer who then takes that distils down the important things and comes up with something that's user friendly and Hayden the tech lead who then has to figure out how to make it. That is the three core pillars of my process and my job, I'm entirely replaceable but my job is to make sure that that machine runs smoothly.

**QC**- Don't say that on the record Roy!

[Laughter]

**SM**- Next up is user experience an integral part of your successful development or is the technology the priority?

**RH**- User experience for me always comes first before technology because you can have really fancy technology if it's hard to use nobody's going to use it that that's what it really boils down to is that we have to build for user experience first and if you can combine user experience with difficult to use technology then that's where you get your innovation and your edge.

**SM**- We've still got time for a couple more questions: how did investors get to know about you and your idea you mentioned there was obviously quite a lot of funding opportunities there but how did they get to know about you?

**RH**- I like to say luck but I'm a strong believer that the more you go out there and talk to people you kind of just create opportunities and all I did was go out went to networking events talk to people who then knew people who then introduced me to no more people and it was just went through the network just went out and talked to as many people as I could and tell my story .

**QC**- But did it also help as well that you clearly radiate passion. I mean I can imagine you're talking to somebody in funding because you are convinced you're more likely to convince somebody else whereas I've seen other people when they talk and even when it's something brilliant they sound

like they don't quite appreciate how amazing it is themselves you've got to have that bit of the sense of I'm telling you about something wonderful here.

**RH-** Yes absolutely and investors that's what investors look for, that's what people look for, that's what your customers look for and that's actually one of the things that I wrote in my article is that don't go and start a company because you think it's a good idea or you think it's cool; find something that you're passionate about, find problems in that space and channel that passion into solving those problems. You will go very far being an entrepreneur with a combination of two things: passion and hard work if you can do both if you have both you'll find the way.

**SM-** We've got time for just a couple more questions: a very topical one how has and how is Covid-19 impacting your business, positive or negative?

**RH-** Obviously lots of our business is reliant on team sports being able to happen and at the start of Covid-19 we thought okay great now we have to push back our sales forecast for six-eight months, we're not going to sell anything for eight months but it's actually been the opposite. What's happened is that clubs with a lot more members who had lots of money starting, who have restricted budgets are going oh okay let's look at alternative options to player tracking and the found us. So we're actually on track for our pre-Covid projections which is incredible for us operationally. Before Covid we all worked from home one day a week, so we just switched to working from home all day a week it wasn't that difficult.

**QC-** Brilliant! Scott sorry to jump in there but I think that will have to be the last question because I've done a full data analysis and I've looked at the clock and we are kind of out of time so can we please give a huge thanks to Roy Hotrabhvanon co-founder and CEO of Sports Data for crunching your ideas and some data with us as well. Also to Scott for fielding all your questions. Next week at 12 30 our guest is David Townsend from Town Rock Energy, they're based in Aberdeen so he may be in heavy duty lockdown but that doesn't stop him from joining us and we've been talking about renewing our thinking on renewable energy so that's 12 30 a week today for those watching live or for those who aren't watching live 12 30 on August the 13th I hope to see you there!