

Science, Innovation and Technology Committee

Oral evidence: Innovation showcase, HC 523

Tuesday 10 June 2025

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Members present: Chi Onwurah (Chair); Emily Darlington; George Freeman; Dr Allison Gardner; Kit Malthouse; Steve Race; Dr Lauren Sullivan; Adam Thompson; Martin Wrigley.

Questions 18 - 20

Witness

I: Luke Savage, Chief Technology Officer and Co-founder, Tribol Braking.

Examination of witness

Witness: Luke Savage.

Chair: Welcome to today's innovation showcase with the Science, Innovation and Technology Committee. The Committee wants to understand how the UK supports innovators, and what more can be done. To inform our work we select an innovator each week to share their story before our main session. This week's innovator is chosen by Steve Race. Steve, could you introduce your innovator?

Q18 **Steve Race:** Thank you, Chair. I am absolutely delighted to welcome to the Committee Luke Savage from Tribol, based in Exeter. I think this one might be slightly different from some of the other innovators we have had recently. Tribol is an absolutely fantastic example of what is going on in Exeter at the moment.

Tribol is a research-led spin-out from the University of Exeter and has been really successful in grant funding, particularly recently from the Department for Business and Trade, to better enable electric vehicle tech in the UK. It is cutting-edge materials science. It is engineering and manufacturing in Exeter as well, so is an example of innovation and manufacturing in the regions, which is what we are looking at today after this session. Tribol is also commercialising with motor sport and others. I am delighted that you are here, Luke. Thank you very much for making the journey.

Luke Savage: I am Luke Savage, co-founder of Tribol Braking. Tribol aims to introduce a game-changing technology in the automotive sector. I have here a brake pad. Almost every vehicle in the world has to have them. This rather innocuous item is safety critical. We all pretty much entrust our lives to a set of these every day. It is a big industry: about 2.4 billion a year of these are made around the world, and that is just for cars; they are also for trucks, motorbikes and so forth. Given the safety critical nature of brake pads—

Q19 **Chair:** Can we see the brake pads? Can you pass them around?

Luke Savage: Yes. It is best to hold both at the same time; this is ours.

Q20 **Dr Sullivan:** That's really heavy, and this one is very light. I take it that the light one is yours.

Luke Savage: Yes.

Dr Sullivan: Wow. That's cool.

Luke Savage: Given the safety-critical nature of brake pads, the design has not really changed for about 70 years. As you can see, there are two parts: a friction puck, which is attached to a backing plate, usually a heavy steel backing plate. Tribol's innovation is to replace the backing plate with a polymer composite. It is no ordinary type of composite. We have adapted materials technology used in spacecraft for heat shields—



HOUSE OF COMMONS

by SpaceX and various NASA programmes. That composite can take an awful lot of heat, which is important because brakes see a lot of heat during their working lives. It is absolutely critical to have that advantage.

Why are we doing this? Our pads are greener, they last a lot longer and they are safer. They are the lightest brake pads in the world. They are about 70% lighter than a conventional brake pad. They are completely corrosion-free. Corrosion is a big problem in brake failures, because it can cause what is called "rust jacking", which is when this part detaches from the backing plate. It also causes brake binding and a lot of wear.

Our pads are insulating; they keep the heat out of this part of your brake system. It is quite dangerous if heat gets into your brake system, especially in the brake fluid. If your brake fluid boils, it leads to a catastrophic and immediate failure of the brakes. Lastly, we have done some life-cycle analysis. Our pads are about 74% less carbon emitting than a normal pad, so they have sustainability credentials as well.

That is the product. I will say something about our journey. We are a classic university spin-out. We spun out from the University of Exeter in 2022. We were both working on a research project looking at developing lightweight braking systems for electric vehicles. That was funded by Innovate UK, a Government body. I mention that because the whole idea came from an Innovate UK grant, which is important for my later comments.

At the end of it, we realised that we were on to something and had something that was commercially attractive. There happened to be a scheme called ICURe, which is a little known Innovate UK funding programme only accessible to researchers at universities. It is basically about supporting them in taking valuable IP out of the laboratory and getting it into business ventures. That sustained us for over a year. It allowed my business partner, Sam, to leave the university and concentrate fully on the business. It allowed us to develop the whole idea, test it to death and prove to the industry that it could work and attract private equity investment. That got us going.

One other thing I should mention is that we are now supported by another scheme, the Advanced Propulsion Centre, which fully focuses on automotive and on helping companies like us take innovative ideas and get them into the automotive sector. They help us with mentoring, capturing and maximising our IP, and understanding the rules and regulations. That is our journey.

What more could the Government do? We have obviously benefited an awful lot from grant funding of different types, but I think that landscape is changing somewhat. For instance, Innovate UK grant funding calls have really dried up in the last two years. There is not much money in it at all, and the grants that are there are hugely oversubscribed. A few years ago, there were about 200 or 250 applications to a grant funding call. Now it is more like 1,700 to 2,000, so the chances of getting funding



HOUSE OF COMMONS

are a lot less. That is quite a lot to do with the fact that there are fewer calls, and there may be other reasons as well.

If I were to ask for recommendations, I would say put some money into Innovate UK. If it is administered properly and run well, it is a very good hotbed for innovation. Given the numbers, an overhaul of the actual evaluation system is quite important. There should be a two-stage application process so that applications can be sifted in two stages. The less strong applications could be weeded out in the first stage and only the best would go into the second stage. A face-to-face interview should form part of the second stage, so that consortia can be cross-examined, and you can understand where the innovation has come from and whether there is an appetite for taking it on if it is a success in the end. In my view, in that way public money would be spent most effectively.

Chair: Thank you very much. That is fascinating. As you may know, we have Dean Cook, the executive director of Innovate UK, speaking to us next. I am sure he will be very glad to have heard your recommendations.

I am so impressed and fascinated by the fact that, as you say, we have in the UK the lightest brake pads in the world. Everybody who has a car knows how important brake pads are. The fact that you are innovating in this space is a trailblazer for the UK, and it could make a real difference to many of my constituents. Thank you very much for joining us this morning, and good luck with your brake pads.