

Monumo, using cutting-edge technology to reinvent the electric motor

As part of our quick founder questions series - or QFQs - we spoke to Dominic Vergine, CEO and Founder of Monumo, about AI & ML capabilities, sustainability and focus.

What was the catalyst for launching Monumo?

I was previously Head of Sustainability VP at Arm, advising on the role of technology in the UN Global Goals and founding the 2030Vision Partnership so working to create a better future has always been at the core of my career.

The sustainability challenges we are facing globally are some of the biggest and most complex hurdles we have ever faced. To match these complex problems, we need complex solutions - this is where the most powerful AI and machine learning (ML) technologies really come into their own.

AI allows us to remove these preconceived notions and start from scratch, offering the chance to optimise innovation in a new way, uncovering otherwise inaccessible solutions. One industry that has a spotlight on it when it comes to sustainability is the automotive industry - the UK is planning to reach zero emissions for new cars by 2035 and the global electric vehicle (EV) market is

projected to reach \$623B in 2024. Given the pace of the global transition towards electric vehicles, and the issues associated with the rollout worldwide, it is a prime example of an industry that can utilise AI and ML capabilities to be as efficient as possible in design, operation, and manufacturing and that is where Monumo comes in.

Tell me about the business – what it is, what it aims to achieve, who you work with, how you reach customers and so on?

Monumo is coupling deeptech innovation and machine learning (ML) with traditional engineering expertise to reinvent the electric motor. By using AI and ML, we are able to create next generation EV motor systems that extend beyond human ability. Fundamentally, our purpose is to significantly move the needle on decarbonisation to create a more sustainable future.

The applications for our technology are broad but our current focus is on the global EV market. Our proprietary technology runs millions of simulations daily to test potential iterations of the motor design, enabling designs unencumbered by human preconceptions and bias. In doing so, our platform can identify the optimal parameters for the specific use-case such as reducing costs, increasing efficiencies or improving sustainability. Our customers range from Original Equipment Manufacturers (OEMs) to Tier One engineering companies.

How has the business evolved since its launch? When was this?

When starting the business, it was clear that there were myriad applications for our technology. Yet, we had to focus our efforts to kick start our journey.

The EV market is continuing to grow but, surprisingly, the engineering of electric motor systems tends to be quite formulaic and siloed. Since launching Monumo in 2021, our work has been focused on the EV market, specifically the largely unchanged area of system level motor design – particularly the separate design of the motor and inverter, despite their interrelationship. Since Monumo's inception, we are now a team of 28 with a 15 strong team of PhD engineers. With such a talented team behind our technology, we are able to harness AI to create optimal electric motor designs faster and better than any

other company – and in ways that have never been possible before.

Tell us about the working culture at Monumo

Back in 2021, I sat down with Monumo's first employee, CTO Dr Jaroslaw Rzepecki, to talk about the kind of company we wanted Monumo to be. We wanted a business that had an intentional culture and set of values. With this mentality as a core part of everything we do, we've created an environment in which people aren't afraid to ask questions, admit when they've made mistakes, and are celebrated for their achievements.

As a Cambridge and Coventry-based business, it's been important for us to create a sense of unity. We have a skilled team of 28 across a range of disciplines – such as automotive engineers, data scientists, physicists, deeptech experts, and entrepreneurs. Over half of the team have PhDs in physics, electronics, ML and computer science, and engineering. Monumo is multinational; there are eight different nationalities and languages spoken, so learning from each other plays a huge role in the company dynamics. Collaboration is essential to the work we do and, with an expansive accumulated knowledge in the team, our team is driven by creating a solution that can be applied to a real-world situation.

How are you funded?

To date, we've raised £10.5M in seed funding from angel investors.

What has been your biggest challenge so far and how have you overcome this?

AI is now firmly in public consciousness, and we need our legal system to catch up to the rapidly advancing technology. Issues around IP and ownership will be murky and difficult to resolve if there are no clear legal parameters around the financial upside of success, as well as the risk and accountability when AI and machine learning have been utilised?

How does Monumo answer an unmet

need?

We can't simply retrofit legacy motors to new age systems and hope for the best. Charging stations are one part of a wider ecosystem but there is much more to do. We need to design and build affordable cars with economical, sustainably produced motor systems – as good as the laws of physics allow. This will be a step-change that is as significant as infrastructure and therefore needs equal investment. Improving EVs from all angles – from engineering and manufacturing of all parts such as motors, to how they're charged and recyclability – is how we truly tackle problems around sustainability and adoption.

What's in store for the future?

One of the great things that we recognise is that our technology is applicable across multiple industries. The technology we've developed has the potential to address a range of complex engineering problems relevant to any electric motor, in any market. Over the longer term, this could be used to create a pipeline of inventions that will impact many different sectors and extend beyond electric motors to optimise ANY complex engineering system.

What one piece of advice would you give other founders or future founders?

Focus is key. Founders are innovative thinkers and have so many brilliant ideas. However, it's important to not try and be all things to all people or do everything all at once. Putting on the blinkers to avoid the temptation of potential distractions helps you to concentrate efforts on gaining market share before moving into other verticals. This does not mean to say that founders shouldn't be agile and open to change! It's a fine line to walk, but this balance has served me well so far.

And finally, a more personal question! What's your daily routine and the rules you're living by at the moment?

Much to my irritation, I have found that in order to stay fit, positive and have the energy for the day I have to eat very healthily and exercise daily – who knew?! Being a founder is all about tenacity and focus so anything that can

give you a little bit of extra energy and clarity is worth the effort. This means I (usually!) get up at 5.40 and go straight to the gym so I can be back at the same time my family is getting up. I then have breakfast mainly of vitamin supplements and try to eat only real foods (ie. no bread, pasta, processed stuff lots of fruit, veg and proteins). This takes effort, as I would rather live like Winston Churchill or Ernest Hemingway, but it makes a huge difference to my energy levels and health. My work days are very varied, no routine there!

Dominic Vergine is the CEO and Founder of *Monumo*.

Article by DOMINIC VERGINE