Interview: Ian Shott – CEO and Executive Chairman, Arcinova, UK

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Ian Shott, co-founder and CEO of Arcinova, tells the story of how he established a speciality CMO on an historic site and discloses his plans to revolutionise small molecule manufacturing through a combination of continuous process manufacturing and bio-transformation.

How did you come to set up Arcinova and what made the legacy site from Sanofi and Covance in Alnwick a good target for a takeover?

Like many things in my life I would describe this as a fortunate accident! My business partner Paul Ryan and I set up a specialist investment and advisory firm – Shott Trinova – focused on established SMEs with high growth potential in chemicals, materials, industrial biotech, pharma and medical technology sectors. We were also advising large pharmaceutical corporations on their strategy, and at the time were involved with Sanofi who were wishing to exit their manufacturing facility at Newcastle upon Tyne and wanted to leave a positive legacy.

We thus set up a plan for them, intending to change the site into a business park. We were successful in selling the project to the local government and small businesses in the region, and everyone was aligned to the concept. In 2014-2015, we created the plan and settled on Discovery Park—the company that took over Pfizer's Sandwich site—to establish the science park.

At the same time, Covance were trying to sell their Alnwick site. Just like Sanofi, they wanted to leave a positive legacy. However, there was a real risk that a sale would not happen, people would

lose their jobs and the site would be demolished. We were asked to come up with an alternative. Rapidly, we reviewed their Information Memorandum and found that, with an annual compound growth of 25 percent and halving the workforce to 55, the business would lose GBP seven million over three years. This was not exactly compelling for a sale.

Therefore, we took a different approach and decided to chop off the vivarium activity and the bulk of the toxicology businesses on the site and downsize across the remaining units while adding something new. In short, we decided on a fundamentally different strategy. I thought the facilities were very well designed and in excellent condition, and a that there was a lot of world class talent on site.

We saw the opportunity to create something truly unique in the world: combining the manufacture of active drug substance with pre-formulation and formulation knowledge to design new pathways and processesto manufacture pioneer drugs. Our focus is the Pharmaceutical Development pipeline where we help our customers enter phase I and phase II clinical trials, primarily servicing the emerging pharma segment, while serving the big pharma segment with a range of specific and differentiated technologies.

While nothing was premeditated, I have spent four decades in the pharmaceutical industry in manufacturing in various geographies and felt I had the right network to accelerate the growth of such an endeavour. So, we did it. We let go of 62 people diminishing the workforce to 50 but then over the last 18 months have hired 50 people with the necessary skills for our new business model. Within 12 months, 57 of the 62 we had to let go had found a new job elsewhere, were retraining for other career opportunities, undertaking charity work or had decided to retire.

Arcinova was initially set up as a CRDO, but we understand you wish to transform it into a CDMO. What is your overall vision?

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After spending 25 years looking at how pharmaceuticals are made, my major assertion was that active drug substance has been manufactured according to a process flowsheet that is 450 years old, in 99 percent of all sites globally. Organic synthesis chemists work in laboratories and have been trained to believe that heat and mass transfer is terrible and that they therefore need to slow the process down. However, this has side reactions, decomposition occurs, and, at the end of a batch reaction, you have many impurities.

In parallel and historically, the industry has always been very siloed and conservative. The discovery chemist does not care about the production process and passes on his research to the development chemist. When coming into contact with the regulator, the development chemist has to consider each step of production and try to optimise the yield. In order to do this, he often has to change the solvent and thus make the process even longer and more complex as purification and solvent recovery is needed after each new step. The plants hence become huge, but the reaction vessels themselves are limited in number and represent a small proportion of the total facility and hence capital and operating costs. The costs are no longer concentrated on the drug making itself but are driven by the issues surrounding the overall process.

My vision is to come up with a completely new methodology for manufacturing medicines and to employ on the one hand continuous technology and process and not continuous flow, and on the other hand industrial biotechnology and synthetic biology to engineer biocatalysts that are stereospecific. Indeed, two molecules can be chemically identical but physically different. In new treatments, the physical shape of the molecule (the chirality) is critical for success to be able to target the right molecular switches in the human body. With conventional chemistry you obtain molecules that present a mixture of shapes: the same drug chemical can in different physical forms behighly effective in one form and highly destructive in another form such as witnessed with Thalidomide. Separation processes are often difficult because of boiling points, solubility etc. being very similar and this adds further process complexity to resolve. By using biological organisms for drug production, we can reduce the number of stages of chemistry needed and improve the precision of the manufacture to the desired end.

What are the market trends that have led you to choose this path for Arcinova?

I think we currently see two big trends that have been outlined in the Technology Roadmap of the UK’s Medicines Manufacturing Industrial Partnership (MMIP) with government co-chaired by Andrew Evans of Astra Zeneca. One is advanced medicines such as cell and gene therapies, the other is productivity, with a particular focus on small molecules. Today, advanced therapies are in a way more “sexy” than small molecule medicines, while in fact many so called biotech and emerging Pharmaceutical companies focus on the development of small molecule treatments and small molecules still dominate the sales portfolios of all the major Global Pharmaceutical companies. Our primary focus is small molecules for unmet needs particularly in oncology, rare diseases and orphan drug areas.

At the same time, large pharmaceutical companies are today very interested in moving their strategy towards intensified manufacturing – lines which we will be providing as an early developer

and seeking collaborations with other companies.

What makes Arcinova so unique and positions you ahead from potential competition?

The combination of engineering biology with a continuous dimension is what makes us unique. Continuous manufacturing reduces the space required considerably and also accelerates process steps, while augmenting their precision. Biology, on the other side, can reduce the number of steps. This is a game changer.

How would you value the British business environment for SMEs?

In my first endeavour trying to establish a new manufacturing process ten years ago, we had to venture all over Europe to find required capabilities to build up our process. Today, as a result of Innovate UK we are able to do it all in the UK. We actually recently received a major grant from Innovate UK. Thanks to this as well as an investment from the Business Growth Fund we now have the capital to grow even more rapidly.

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As a visiting professor I am personally engaged in other business and research ventures such as photoelectric continuous reactor systems research with the University of Nottingham. All of this is connected and joins up to give us leverage points for future projects. The environment for SMEs in the UK is vastly better than one to two decades ago.

Can you outline for us the state at which Arcinova is today, we hear you have been experiencing tremendous growth since inception?

In our first year of business we had a revenue of GBP four million, increasing this to GBP 7.5 million in year two. This year we aim for GBP 12 million and will hence have at least doubled revenue every 18 months since inception. Our target is to reach GBP 45 million in 2022, with about 300 employees.

I am very proud of how far we have come within these first 30 months of the Arcinova business, especially when it comes to talent. We have been able to hire great minds from various companies, which added to the fantastic team we inherited, and we will continue to scout. At Arcinova, we are very focused on values and encourage our 100 employees to uphold them at all times.

Are there any challenges you foresee for Arcinova?

Every day is a challenge in a sense, but the key to success is having the right driving vision and more importantly, enormous resilience. I think it is essential to take it for granted that every day will be a challenge, and of a very diverse nature, from human challenges, to technicalities or customer relations. This is how you advance with a constant stream of remedies.

How do you ensure you will continue to remain the partner of choice for your customers?

Service and delivery will continue to be key, and both correspond to our main focus. In 24 months, we already increased our customer base from 50 to 125. Many of these customers are biotechs or emerging companies, of which some will disappear soon. However, we are already conducting important work for at least ten of the biggest multinational companies globally. For some, we are doing modest but important work programmes like stability studies, but for others we are conducting GBP 1.5 billion projects as a combination of bioanalysis and complex Chemistry Manufacturing and Controls work. We are constantly striving to improve our service and delivery as reputation is crucial.

What final message would you like to send out to our international readers?

Companies like ours have changed a lot over the last decades. When I joined Lonza in 1992, its Pharmaceutical Services Business was primarily a technology play. By 1998, we had a key account strategy, working with ten out of the top ten companies and were very definitely a world leading player. With Arcinova, my partner Paul Ryan and I, bought a site not a business. Hence, with our combined experience, we were able to transform it very rapidly.

Now, I am passionate about creating a new paradigm in small molecule manufacturing, building a very strong robust and sustainable business and scaling it up to midsize. My ambition is to create a business with a substantial market value. This is not trivial. In the light of the political and social context and narrative in the UK, in which Britain has previously failed to create midsized companies, we want to be one of the future stars.

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