Interview: Donal Higgins – MD, Prochem Engineering, Ireland



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Donal Higgins, MD of Prochem Engineering, provides an overview of their life sciences operations, the key innovations they are bringing to the industry like computational fluid dynamics (CFD), and his mission to position Prochem as the leading multi-disciplinary engineering company in the southeast of Ireland.

Donal, can you give our international audience an introduction to Prochem Engineering?

Prochem was founded in Kilkenny in 1995. In the first instance, Prochem primarily provided services to MSD in Ballydine, constituting around 90 to 95 percent of Prochem's turnover. In 1997 and 1998 respectively, I, along with another director, joined and the company expanded its client base, beginning with manufacturing sites that had similar technology to the MSD Ballydine site, an API facility.

Since those early days, we have made excellent progress along a number of fronts. We have reached new clientele, added to our product and service offerings and competencies, and grown the company significantly in the past few years. As a simple indication, while all of our original customers from the initial years remain valued clients, they now account for less than 5 per cent of our revenues.

We are a diversified company serving a number of sectors in addition to the pharma, biopharma and medtech sectors, but the life sciences sector remains the most important for us, representing

between 80 and 90 percent of our turnover in any given year.

While we have some key clients, we work with a broad spectrum of organizations across the biotech, pharma and medtech sectors. These range from smaller indigenous operations, to large established sites employing hundreds of staff. Our sweet spot customers are those undertaking capital projects with a value, excluding client equipment, of up to EUR 20 million. That said, in the past five years we have completed design and construction support on two facility expansions each with a construction capital value of approximately EUR 50 million.

One key differentiator for us is that we are not totally focused on capital projects. It’s not unusual for a client’s first exposure to Prochem to be in the resolution of an ongoing site challenge, be that in terms of resourcing or a complex technical process issue. More often than not, this leads to involvement in subsequent capital projects through the client’s exposure to our competencies.

In 21 years, Prochem has grown from a company providing process and electrical design services to a single client, to one which now provides complete multidisciplinary design, construction and engineering support services to a large percentage of the Irish life sciences sector, which we are very proud of.

You were appointed MD in May 2015. What was your mandate?

My mandate is to position Prochem as the multidisciplinary engineering company of choice for the process sector, firstly in the southeast of Ireland and subsequently evolving that to include both the Dublin and the Cork areas. That has been the direction the company has taken essentially since its inception.

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Kilkenny itself is in the southeast, so that was the rationale behind our geographic positioning. Together with Dublin, Cork and Waterford, this is the region with the most pharmaceutical investment. From an engineering perspective, our experience is that companies prefer to be serviced by a local engineering house – and we are well-positioned to fulfill that need.

What is Prochem’s international footprint at the moment?

In line with this strategy of becoming fully established in an Irish context, our international exposure is limited at the moment and is more opportunity-led.

One example was an interesting collaboration with Chinese companies whereby we provided training to them in China in the area of process piping design. This came about by virtue of a

service we had developed for the Irish market. We noticed the advent of computer-aided design (CAD) had led to a decline in familiarity with the first principles of design engineering. In the first phase of pharma investment into Ireland, the person responsible for the drawing would typically also be responsible for the sizing and orientation of the pipework, and would therefore have detailed knowledge of the facility. CAD had reduced the need for engineers to possess that knowledge, so there was a gap in skills there. We set up a course to address this gap, and rolled it out successfully in Ireland. Subsequently, Enterprise Ireland brought in a trade mission from China. The Chinese companies were very interested in this course, and to cut a long story short, we ended up delivering training on piping design for their teams back in China.

As a veteran of the industry, how have you seen the pharmaceutical manufacturing landscape in Ireland evolve in the past few decades?

The most critical development has been the shift from API production to biopharma production. The first wave of foreign investment came in the 1960s and until the late-1990s, they all focused on API facilities. In the last decade, however, biopharma investment has taken off. This has understandably been accompanied by the consolidation, conversion and sometimes even closure of various API sites. As you have noted, all the key investments and developments within Ireland are in the biopharma space.

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At the same time, the pharma manufacturing space has seen a lot of innovation. Continuous manufacturing is a hot topic at the moment, and there has been a lot of discussion and debate within the industry in this field. That said, this space is still nascent and there is a lot more room for further innovation and improvements. I have been involved with a number of organizations discussing the complexities within this space, and it is certainly very exciting.

Another emerging trend is the use of 3D printing in a manufacturing environment. It is a space we are watching with interest to see how our customers adopt this technology. It certainly appears that medtech companies have embraced it more readily, which is logical when you consider that the chemical and biological processes in pharma and biopharma are not easily replicable by 3D printing technology. We are keeping a watching brief, and as with any other new service we have added to our portfolio, we will respond to customer demand once the business case makes sense internally for Prochem.

What is Prochem doing to stay at the forefront of cutting-edge technology?

In addition to staying on top of industry trends, we have identified a few other areas we want to develop further. One of them is computational fluid dynamics (CFD), which we have used over the last six years to help us in the specific context of building services. Our expertise in this area evolved from a collaboration with University of Ulster which explored the potential for CFD use in a pharmaceutical environment.

When executed with the latest software, and using qualified and experienced personnel, CFD can deliver significant benefits to clients in terms of energy savings, bioburden reduction and numerous other factors. This applies on both new designs, and in reviewing the operation of existing facilities. In essence CFD gives us the opportunity to perform a test drive or a simulation on a proposed or existing design, and gives us the ability to look at, say, the movement of air flow in a room at a moment in time – steady state, or on a time-lapsed, transient basis. Ultimately, it allows you to optimize the air flow regime, and to determine areas of concern from a microbial or a health perspective before you actually build the room, which generates cost and time savings.

More recently, we have embraced the 3D design sphere through the introduction of BIM (Building Information Modelling) as well, and we are very excited to see the efficiencies we can achieve using this technology.

Can you also tell us more about your innovative HR approach, Tech^3?

Through our secondment offering we provide engineers and other technical personnel to manufacturing sites for short durations or longer projects, because clients sometimes want to limit their headcounts for various reasons. One of the great advantages of Ireland is the mobile workforce that you can leverage as contractors, and we have been fulfilling client's resourcing needs in this manner for many years.

The unique selling point of Tech^3 is its innovative and well-rounded nature. The whole idea behind it is that, our clients are technical people, speaking to us as technical people to source technical people for them. All of us understand the project requirements and expectations. From our experience in the sector as well as in the Irish market, we would be very familiar with the ongoing projects, the clients in this country as well as the specific needs of individual projects, and we would be able to bring that knowledge to bear when we interrogate people's CVs. This avoids the tick box exercise that is more typical of traditional recruitment sourcing.

Dave Murphy from the PM Group was telling us that he disagrees with the common industry approach of tendering because it only focuses on costs instead of the value a good partner could deliver to a client across the entire life cycle of the project. What

are your thoughts on this assessment?

I absolutely agree with this. A relationship approach is better for everyone, especially in the longer term. Much like a doctor-patient relationship, you can understand what is actually happening in the plant and know the ins and outs of it much better over time. Developing this relationship with clients also enables us to anticipate their future needs. In contrast, a transactional approach based solely on obtaining the lowest prices has very clear disadvantages in terms of mobilization and lack of knowledge. So while the client may have gotten a cheaper deal in the shorter term, it is generally more expensive in the longer run, leaving aside the obvious consideration about the quality of solution delivered.

What would you say differentiates Prochem Engineering from other Irish service providers?

Firstly, the flexibility that we are able to provide; secondly, the proximity we can offer, particularly for our target clients based in the southeast of Ireland; thirdly, a full appreciation of what our clients are trying to achieve, as a result of our expertise and engineering background; finally, the continuity of our staff. This I want to expand on because it is such a great advantage: because of our niche focus and positioning, we can almost guarantee our clients that we will have the same people assigned to their various projects. That is a key differentiator for us compared to the larger engineering houses whereby clients sometimes will have multiple teams even on the same project.

Looking forward, what would you like to achieve for Prochem Engineering in the next few years?

I want to firmly establish ourselves as the leading multidisciplinary engineering consultancy serving the process sector in the southeast of Ireland, and then to leverage that into the Dublin and Cork markets. I also want us to be recognized for some of our innovative products, like the CFD capabilities. In terms of figures, I hope to see a 50 percent increase in revenues, or a 15 percent increase per annum, which is not unreasonable – and very much in line with what we have achieved in the past few years since the recovery.

My own personal motivation is to position Kilkenny as a key engineering hub within Ireland. The reason for that is to provide engineers from this area with a good place to work, challenging projects and international exposure – all without having to leave their roots. This is also why I like engaging with associations like the International Society of Pharmaceutical Engineering (ISPE). It is very admirable how the life sciences scene within Ireland is so collaborative and supportive of each other, and I would like to contribute to that both on a personal and a professional level.

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