

Holes not drills – the next big thing for fluid handling systems

Chris Covey is Vice President, Industrial, Sagentia. In this interview he gives his thoughts on those product and system design innovations which have the potential for adding most value to manufacturers of meters, pumps and associated systems. He considers how manufacturers in this sector are moving to alternative business models and seeking new ways to add more value for their customers in response to smart factory initiatives and industry 4.0.

▮ Q. What do you see as the next big R&D trend that pump and fluid systems manufacturers should consider?

Probably the most exciting trend is what we call – ‘holes not drills’ – or in other words the move to a service-based model. This is essentially a business model based on the delivery of a service, rather than a sale of a fixed asset. Previously this was impossible – you couldn’t sell holes as there was no way to deliver that. In the past manufacturers might sell a pump or a meter and customers would look at the specification and check that it delivered the performance they needed. But that’s not the most efficient way of getting things done.

The best way (and one that is becoming possible) is to have the manufacturer of the equipment to manage the equipment when it’s in use. So we’re seeing a move away from a race to produce devices at the highest specification for the lowest cost. Now manufacturers



want to ask their customers how they want to use the asset. If it’s to meter water – they want to be able to provide the meter at little or no cost to the customer but the customer pays for the metering of the water. The manufacturer wants to provide data about what is going through the pipe as part of a service-based business model.

▮ Q. How are service-based business models being used?

Other than a few exceptions like Rolls Royce’s ‘power by the hour’, industry hasn’t reached this stage yet but it’s moving in that direction. One possibility for an interim stage to Industry 4.0 that we’re working on, is to enable a manufacturer of meters to sell the asset as normal but additionally sell an analytics package to their customers. For utility customers, or those with a large plant, customers may wish to get daily readings or hourly data and better stats on how the fluid is being processed. The manufacturer of the asset can enable

that by monitoring the meter or pump remotely. In turn the utility company that purchased the meter might choose to offer different tiers of analytics and provide this information to end users to give them deeper insight into their usage patterns. These development start to change the business model of both pump/meter supplier and their customer.

▸ Q. What value does a service-based business model offer manufacturers of pumps, meters and fluid systems?

A service based business model or 'servitization' means the meter manufacturer gets to upsell something of real value to their customers but also gives them a monthly revenue stream. They have essentially servitized their business and given themselves a more consistent revenue stream from those subscriptions.

It's a bit like a set top box – In a smart factory, you don't buy the box you buy the service. The value of service-based revenue models is that they enable closer relationships between the vendor and their customer base. Manufacturers get much deeper insight into how their customers use their product. It allows the manufacturer to see how the product is being used and help them develop improved functionality in future iterations or guide the customer to better models depending on the features they use.

▸ Q. How does the Internet of Things play a role in servitization and Industry 4.0?

Managing assets in a connected world as part of Industry 4.0 is certainly a crucial consideration for product design. Wireless infrastructures are developing at such a rate that there is significant additional functionality that can be added to flow control systems, pumps and meters without burdening product design with significant additional cost. The challenge, as a product designer, is leveraging the value of this shared infrastructure as it exists today whilst future-proofing the approach to be able to take account of technology developments in the future.

Cybersecurity and data protection are also critical given that access to data from something like a residential water meter could ascertain that the home

owners are away. Industrial customers expect intelligence in their devices and to be able to connect to the asset as part of a wider plant management system. To gather useful data to drive improvements in performance, it's important that a device is able to connect to an infrastructure as it is now and as it may be in the future.

▸ Q. Why will service-based business models make a difference?

If design is done well and servitized for the connected world, manufacturers have the opportunity for better dialogue with their customers. 'Power by the hour' means Rolls Royce sell 'thrust', they don't just sell 'engines'. They simply sell the amount of power needed to run the airline. With such high value assets, manufacturers' product knowledge is needed past the point of sale to the extent there is both safety and performance benefits of having the manufacturer actively managing the asset on an ongoing basis.

For fluid handling it may be preferential for the pump on the smart factory floor to be monitored in situ. From the point of view of the manufacturer there is a huge benefit in that they get much better understanding of how their product is performing and its need for maintenance. They also get visibility into usage patterns. The resulting customised analytics means they can evolve the product or customise it for specific purposes and provide deeper insight to their customers. Servitization provides new possibilities for manufacturers to build strong bonds with their customers which will help with customer retention.

Industrial customers benefit from the improved visibility of how their processes are performing, how their asset maintenance schedules should be managed and how to run their plant for optimum performance. In a smart factory setting, the use of intelligence through sensors and algorithms makes the unknowns, knowable and it may provide the opportunity to run the plant to tighter tolerances and improved safety factors.

▸ Q. What other flow control technology development trends do you see?

Our clients are all experts in what they do but sometimes they say they can't see the 'wood for the

trees'. It's easy to be so close to a product that the more radical design improvements are just not seen. When people think about technology they often think about technology adding functionality. But it can also be used to radically redesign an asset to make it lighter, more efficient or to reduce its cost for entry perhaps into new markets.

Caught up in fighting 'the fight for margin' sometimes our clients haven't had a chance to lift their heads up and fundamentally change how their product operates to make step changes in cost reduction or performance. For example we may be asked to achieve the same performance from an existing asset but with a two or threefold reduction in manufacturing cost. Separately we may borrow from other industries and introduce a radically different way to cool a motor, perhaps from air to water cooling, and in doing so make massive improvements in performance or cost.