



Working in Silos

By Justin Eames

Many large pharmaceutical companies still work in silos.

Maintenance and technical teams often operate in isolation. Data scientists experiment with new approaches but a lack of collaboration and communication with C-Level decision-makers can mean that innovative ideas are never taken to market. There is often a strict hierarchy of command in place, which makes direct interaction difficult.

All pharma businesses by necessity have well-established, often complex, proven validation processes in place. If a technology has been through this cycle and is working in the manufacturing environment, businesses are can be reluctant to take on further technology evaluations in a bid to achieve a more rapid time to value, simply for fear of this affecting validation status.

Most of the large global pharma businesses are also highly academic and strongly R&D focused. They are innovative in new drug development but less so in manufacturing. They trust existing expertise and the tried and proven processes they are working with and are therefore more risk averse and less receptive to disruptive innovation that could drive additional efficiency benefits. In essence, they are often so focused on continuity of process that they have little time to consider digital innovation which may bring additional benefits.

A pivotal point

The current crisis and the pressures that it places on the industry may be a tipping point. In a world where social distancing has become the new norm, and existing manual processes that have held sway for a long time are less easy to execute, is now the time for the industry to change and move from a focus on the academic to applied innovation and from an essentially conservative outlook to a bolder more forward-thinking one?

Once the initial disruption of the pandemic is over and we see more and more workplaces reopening and processes resuming, we expect that the post-COVID world will be more receptive to digital initiatives. There is a determination to explore new digital initiatives to ensure that if there is a 'second wave' or a new viral outbreak, plants can keep running. There is also a realisation among some manufacturers that can operate efficiently with less people on site as part of the production process and that post-pandemic, they may be able to streamline their operations in this way. There is a renewed sense that digital can work and this may give pharmaceuticals manufacturers a new confidence in exploring the latest innovations.

If implementing a new advanced technological solution could in no way directly affect the patient then manufacturers are likely to be more receptive to it. Solutions that enhance asset management are therefore likely to be viewed with greater openness and receptiveness than those that directly impact drug manufacturing processes. If the innovation does not 'touch' the product itself then there will be fewer barriers to implementation. So, there is an opportunity here for the latest innovative technologies and their providers, but how can they best take advantage of it?

Security of supply and how predictive analytics can support it

In these times especially but far from exclusively, security of supply remains one of the biggest drivers for pharmaceuticals manufacturers.

In this context, many of them have an intense focus on reducing supply chain disruption, increasing capacity of batch production and reducing batch losses. Reducing lifecycle maintenance costs and CAPEX remain high on the agenda too. Notwithstanding compliance and safety, manufacturing equipment availability is therefore a top priority. Without exception, pharmaceuticals manufacturers tell us



that they want to be able to predict asset degradation and failure well in advance of an impending breakdown or disruption, to be able to make decisions that can not only minimise cost and disruption but that can also protect public health by ensuring continuity and resulting quality of drug supply.

The digital technologies behind this capability can also enable manufacturers to get more capacity out of their existing equipment and prevent them from having to buy costly replacements, or even avoid large CAPEX investments building new manufacturing capacity.

This kind of predictive capability rather than merely an analysis of historical trends in the data is key in delivering real commercial benefits to pharmaceuticals firms. It provides the added value that pharmaceuticals manufacturers need over and above simple data analytics that is likely to overcome their reluctance to take risks and persuade them to invest in order to drive greater efficiencies in the future. But how can all this best be delivered?

Applying tech to deliver real results

One of the biggest benefits of the latest technology in this area is its ease-of-use. Today's machine learning and predictive analytics solutions allow pharmaceuticals companies to attain rapid results without needing them to write a single line of code. The data science is hidden and enables workers with little or no dedicated data science expertise to manage them. Current staff who are already employed can be easily taught and trained to manage platforms.

The data itself is also relatively easy to manage. Across many sectors data is often unpredictable. It has anomalies, there is a chance that you could be unwittingly sent down the wrong path.

Pharmaceuticals, however, has very little, if any 'erratic data'. Why? Because by its nature, the process of manufacturing drugs is hyper-

controlled. The adoption of machine learning can bring fast results and deliver real value to pharmaceuticals companies within weeks.

The pharma industry also has reserves of similar equipment in play, like the exact same pump used in multiple services, or several similar production lines. This is where transfer learning has a role to play. By sharing the normal and failure behaviours of assets found on a single machine with the other members of the pool, we can rapidly increase the scale and safety of an operation and avoid breakdown of all equipment of the same type and configuration. This ability to rapidly scale an enterprise can save millions of pounds in value.

The time is now

The pharma industry is well suited to the kind of predictive analytics capability outlined above and the restrictions put on manual working by the pandemic is acting as a catalyst for change. In short, this is the moment for pharmaceuticals manufacturers to change and start to move their digital initiatives and experiments to real world commercial implementations that have a positive impact on their business.

It is time to adapt. Manufacturers need to avoid falling into the trap of just conducting data science experiments that don't positively impact their business. They do not have time. The world is changing too quickly and they will be left trailing in the wake of their competitors if they don't focus on how to use the latest digital technologies to drive commercial advantage. ▲

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