Less Waste, More Speed

A number of factors – including an unsteady global economy and an innovation slowdown – have driven R&D costs to a considerable high. By tapping into the huge volumes of data created during early-stage trials, pharma can steer more effective drug development while significantly reducing costs.

The pharma and biopharma sectors produce masses of data. And, like many other industries, the majority of businesses do not take full advantage of it. However, with the industry in a tumultuous position, some commentators have suggested that now is the time for pharma to make more of the information they have at their disposal. But why are companies so slow to exploit data, and what can they gain from embracing it?

The industry is currently in a state of flux: a raft of M&A activity, combined with a fluctuating Chinese economy and the knock-on effects of a drop in innovation, have affected the progress of many firms. In addition, the cost of developing new products has risen to almost prohibitive levels, with the failure of late-stage clinical trials setting businesses back millions – if not billions – which consequently pushes up the price of drugs when they do eventually reach the market.

As a result, it is generally agreed that something needs to change if companies in both the pharma and biopharma sectors are to continue to remain profitable and be able to best serve their customers’ needs.

**Data Waste**

One mooted approach has been to drive greater efficiency by being smarter with data. Because of the very nature of the industry, and the levels of research that go into pushing any new product to market, the pharma world produces absolutely masses of excess data. However, until now, little has been done with it. While other industries are also guilty of this, the issue is much more significant within pharma. No other sector undertakes such extensive and lengthy research before bringing a product to market – and to not take full advantage of this is simply wasteful. By producing more of the big data that is created at trial stage, the sector would be able to direct research much more effectively, and therefore prevent companies from pursuing any unviable opportunities at a much earlier phase.

Placing more of a focus on data produced from clinical and preclinical trials can also allow companies to identify opportunities that may have previously slipped under the radar. The best-known example of this comes from Pfizer, which almost abandoned its unsuccessful angina treatment before noticing an unusual side effect. That near-failed experiment later became the fastest-selling drug of all time – Viagra. If such an opportunity was almost missed in this instance, it begs the question of what could be uncovered from a more extensive and detailed manipulation of previously wasted data?

By sharing the data that is captured with other firms, for example, the entire pharma sector could benefit enormously. Organisations could potentially work together to create huge repositories of information that could be easily connected to other sources at other companies, to deliver far cheaper drugs for their customers. Gone would be the days of launching trials that have already been carried out unsuccessfully by another group – which would naturally save organisations huge amounts of money that could be

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Keywords

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redirected to more effective causes. While the idea of Big Pharma firms wanting to openly share their intellectual property – which has been shaped through carefully conducted and extensively financed research – is unlikely, the results could benefit the entire arena, and, more importantly, millions of its customers. In addition to the obvious ethical impact that the sharing of data could have, it would also mean that both the attrition of drugs during development, along with the number of animal experiments, would be reduced.

**Share and Share Alike**

There are very few issues that could prevent pharma companies from sharing data, particularly at the preclinical stage. There are no patient confidentiality concerns (as data does not require peer review), and there is no need for lengthy write-ups on complex subjects. The fact that 84% of preclinical work is publicly funded means there is also almost an ethical requirement for the information to be shared (1). Companies including GlaxoSmithKline, Pfizer, Johnson & Johnson and Biogen have all recently committed to improving data transparency, while AstraZeneca and Sanofi have also agreed to exchange chemical compound libraries (2).

However, so far there have been few substantial outcomes, in spite of the fact that all trials conducted in the UK are supposed to be hosted on clinicaltrials.gov, which was launched 18 years ago. In that time, less than half of the results of those programmes have been submitted and published on the platform (3).

One of the reasons it is becoming increasingly important to exploit data is because there is so much more of it. As well as the masses produced through research and trials, we have also seen the growth of the cloud and the so-called Internet of Medical Things, which has led to much greater connectivity and therefore far more sharing of medical records and information (4).

Take, for example, the Onbrez inhaler that Novartis produced in conjunction with US technology giant, Qualcomm. The product sends information about how often it is being used to remote computer servers in the cloud. This allows companies – and patients – to track usage and measure the efficiency and effectiveness of the device, which means that medical practitioners are able to create more intelligent and targeted care plans.

The opportunities that this connectivity could bring are almost endless, and has the potential to improve the lives of millions of patients – on top of saving firms a considerable amount of money that could be redirected to more effective causes.
Specialist Skills

While reading this, you might be wondering why the industry has not grasped this seemingly obvious opportunity that could benefit a huge range of stakeholders – but the reasons for not doing so are widespread. Perhaps, most importantly, there is not enough of the ‘right talent’ around to make it happen, as people who can identify, extract and manipulate data are hard to find in the current market. Nobody is denying that pharma professionals are some of the brightest and most talented around, but analysing highly complex data stacks is not something everyone can master – even the sharpest clinical scientists.

To make the most of the vast amount of data at their fingertips, organisations need to put more of a focus into hiring data specialists. These are the individuals who can design and understand infrastructure, and then extract and analyse information from a range of clinical and preclinical sources. And, at present, not enough of these professionals are being taken on.

Data scientists, analysts and architects are some of the most highly sought after experts around at the moment, with demand stemming from almost every industry as a result of the growth of the big data revolution. However, the supply of these professionals is not quite as fluid as the need for them. In the US market alone, it is estimated that there is around a 50-60% gap between supply and demand (5). In some cases, starting salaries are consequently as high as $300,000. One option that many companies are utilising is to source workers from other industries with transferrable skills, and then investing heavily in training and developing them.

Whatever choice organisations make, they need to move quickly. According to the latest study by Accenture, 91% of firms expect to hire more employees with expertise in this field in the near future (6).

Put to Good Use

Ultimately, there should not be a question of whether or not to adopt a more exploitative data strategy. While there is a need to develop a trusted format for sharing information – and to find the people to design and manage this system – the results could have an exceptionally positive effect on the pharma and biopharma industries, and could lead to faster development cycles, new discoveries and more personalised, targeted and cheaper products for customers.

Encouragingly, we are seeing more firms embracing this strategy and seeking partnerships with major digital companies as avenues for potential growth. The Financial Times has reported that GlaxoSmithKline is in discussions with Qualcomm, which already has the aforementioned deal with Novartis in place (7). Others are working with giants like IBM, Google and Samsung, which could soon lead to much greater traction in the use of data within the industry.

However, these partnerships do not solve the problem of wastage, and it remains to be seen what organisations intend to do to tackle this issue. If they do make more effective use of the information at their disposal, it would spell good news for both pharma firms and the patients that they serve. Data is here to stay: it is big and it could make pharma firms much cleverer.

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