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Betting big on research in China

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Nick Stephens



For eighteen out of the last twenty centuries, China has stood as the world's most innovative and largest economy - only to have been displaced in the last two.

However, the tables are turning once more, as pharma companies bet big by shutting down sites in Europe and the US and expand their R&D operations in China, particularly in Shanghai and Beijing.

A large proportion of the pharma industry believes pharmaceutical innovation will accelerate in the East and that local R&D will develop a more customised solution to these growing and increasingly important markets. The question is, will the big bet pay off?

And if so, how do you pull it off?

From soup to scale

In the late 1990s, scores of multinationals were catching on to the cost-cutting benefits of sending work to China. Not pharma. The industry was bulging at the seams with profits and confidence.

Whatever money could be saved by shifting R&D to the East would have seemed inconsequential compared with the billions of dollars at stake in the development of a new blockbuster. In fact, as recently as 2002, the Chinese pharmaceutical R&D landscape had still resembled a 'primordial soup' - with lots of energy and potential, but very little in the way of organisation or sophistication. What a difference a decade makes.

In the last ten years, driven by the need from multinational pharma companies for increased cost-effectiveness, this primordial soup has evolved - as is often the way - into a 'higher order' entity.

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As such, in a relatively short space of time, we've gone from the early days of Western scepticism and disorganisation, to the rapid expansion of CRO outsourcing services, to way, way beyond. Evolution has recently accelerated too, with pharma companies now displaying unprecedented levels of commitment to China-based R&D - complete with large-scale, eight-figure financial investments. Their commitment is often coupled with the shutting down of sites in Europe and the US, necessarily, and so is not without significant risk. In addition to the need for increased cost-effectiveness, the move for many forward-thinking pharma companies is motivated by their desire to tap - or at least try to - China's massive (and increasing) healthcare market and the profit-potential housed there.

Henrik Glarbo, previously regional managing director at Mundipharma Asia, has "seen the rise and rise of China from the inside for over 20 years", and predicts "it will be the world's biggest market within 15 years".

Getting their toes wet

Pharma's first foray into China-based R&D often took the form of CRO outsourcing. At the beginning of this century, hundreds of local biotech companies battled it out with mixed models of income-generation - attempting to subsidise their own drug discovery (or even generic development) with services to other biotechs, universities, and multinational pharma companies. They did so with varying levels of sophistication and success.

However, although clinical trial outsourcing had taken place for some time, chemical synthesis was rare, molecular biology experiments only happened at tiny scale, and animal studies were practically non-existent. Pharma got its toes wet, yes, but it was only after the Chinese R&D infrastructure (physical, legal and economic) had undergone radical, much-needed improvements that it decided to jump right in.

Come on in, the water's fine

And it didn't take long. In a relatively short period of time, pharma's initial trepidation transformed into full-on enthusiasm. The second half of the last decade saw a series of high profile announcements from multinational pharma companies, communicating their commitment to China-based R&D.

As early as 2006, for example, AstraZeneca announced a \$100 million commitment to create the company's Innovation Center China (ICC), which was to be located in Shanghai. In 2007, GSK announced the establishment of a \$40 million Shanghai R&D centre, primarily focusing on neurodegenerative disorders. Both these sizeable investments were soon trumped. During his visit to China in November of 2009, Novartis chairman and chief executive Daniel Vasella made this stunning announcement: his company would commit \$1 billion to expand and upgrade its Shanghai laboratory facilities, creating the new, formidable China Novartis Institute for BioMedical Research (CNIBR) in Shanghai.

Hot on Novartis' heels, Novo Nordisk announced their own commitment: an investment of \$100 million in its Beijing R&D facility, and to increase the facilities from 100 to 200 employees by 2015. A picture emerged, and these companies were far from alone in their commitments to China-based R&D - many others, including Novo Nordisk, Genzyme, Sanofi, Johnson & Johnson, Merck-Serono and Boehringer-Ingelheim, have also established (or plan to establish) R&D bases in mainland China, often at the expense of their Western facilities. Many see the East as integral to any long-term business plan.

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As Patrick Keohane, head of R&D, Asia Pacific and Japan at Astrazeneca, puts it: "Asia should now be at the centre of any significant company's clinical development strategy."

What's to gain?

Of course, these companies will continue to utilise the hospitable Chinese environment for more cost-effective R&D with Western relevance. But much more than this.

New opportunities are unfolding for the development of drugs especially relevant for the Chinese market, and Novartis et al. will put their newly acquired local knowledge and facilities to use in broadening business horizons and building up sales in China, and Asia as a whole. With their investments, then, pharma companies are buying much more than just research facilities - they are, potentially at least, buying a slice of an extremely large, extremely lucrative pie.

Their investments will also allow them to compete for the top local talent from China's growing PhD and pharmaceutical research scientist talent pool - which will be a key to long-term success in the increasingly important Chinese (and Asian) market.

A case in point

Eli Lilly has been actively expanding its operations in China since the 1990s. It now has operations and R&D facilities in Shanghai, as well as manufacturing facilities in Suzhou and more than 30 offices throughout the country. Last year, however, Eli Lilly announced plans to deepen its investment in China by opening a dedicated diabetes research centre in the country, strengthening the firm's chances of delivering new, innovative therapies to treat the region's rising number of diabetes patients. And they're not the only company betting big in this way: "The diabetes epidemic in China was the core reason for my pioneering the move of Novo Nordisk to China in 1993," says Henrik Glarbo.

Eli Lilly is already the number four player in the global market for diabetes treatments, behind Novo Nordisk, Sanofi and Takeda, and all these companies are now gearing up to respond to soaring demand for diabetes medicines throughout the world.

Nowhere will the battle for market share be more evident than in China. The country is already the world's third largest pharma market, as well as the largest in Asia - sales in China are growing at an average rate of 22% a year, compared with an average increase in global drug sales of 6.2 per cent. And, with obesity and other diabetes risk factors on the rise, so are sales of diabetes treatments.

The World Health Organization (WHO) predicts that, by 2025, the number of diabetics will increase by around one third worldwide. Around 80% of all new cases will be in developing countries. It is expected that, by 2030, seven out of the ten countries with the highest number of diabetics will be in Asia. Indeed, according to the International Diabetes Federation: "It would appear China has overtaken India and become the global epicentre of the diabetes epidemic."

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In light of this unmet need and massively lucrative opportunity, many of the pharma companies mentioned above have identified diabetes as a priority area for both R&D and manufacturing in China.

However, simply transposing the traditional, Western ways of working onto this new market won't do. There are "key differences in the molecular basis of diabetes in Chinese and other Asian populations", according to Eli Lilly. Therefore, the successful development of new, targeted therapies will depend on a new, targeted approach to the problem.

Ultimately, it will depend on R&D that is tailored to both the Chinese environment and population. This requires local knowledge. China's own talent pool is high and rising - and it must be tapped effectively if there's to be any chance of meaningful innovation in China. Or so says Amar Kureishi, vice president and chief medical officer, Asia Pacific at Quintiles: "China is different, but if you understand and respect that difference, it's a country that will work to produce a win-win relationship for you and your company."

Making the most of it

For some years then, pharma companies have repeatedly announced large-scale financial commitments to China.

Often, however, significant portions of these commitments go towards non-innovative activities. Despite these incremental, pharma-driven improvements in national innovativeness, therefore, China had yet to claim a seat at the table among the world's major pharmaceutical R&D centers. Is this about to change?

According to Amar Kureishi: "China represents an opportunity for the industry to recreate drug discovery and development; done well it could be transformational for our industry." And with improvements to its physical and legal R&D infrastructure, a restructuring and updating of its economy, as well as a commitment to improving access to healthcare and exportation of home-grown biopharmaceuticals, China is looking set to become an R&D superpower.

Last year, Quintiles chief executive Dennis Gillings speculated that China could eventually unseat the US as the world leader in biotech R&D. And those pharma companies with considered, explicit China-based recruitment strategies will be best-placed to take advantage of this new R&D order.

There's no doubt, the race is on for the first Asian blockbuster. But who will win it?

PRICING REFORM COULD CUT PROFITS

The huge potential of China does not come without problems familiar from other global markets.

Reform of pharma pricing in China is being pioneered in the western province of Anhui, and is causing concern for international pharma companies.

The Anhui system encourages pharma companies to compete on price and quality for state contracts, and has already driven down costs by 90% in some cases. Anhui is China's fourth-poorest province and has introduced a tendering system for medicines on the government's essential list, which includes branded medicines from foreign companies.

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The Anhui system is now being tested in five provinces, and pharma industry representatives fear the system will be taken up across the country, and extended to a wide range of medicines. This could potentially cut their profits in the world's fastest-growing pharmaceutical market.

Prescription drug sales in China have more than doubled since 2006, making it the world's third-largest market.

The emergence of a wealthy middle class with higher levels of medical insurance has improved access to medical care, especially in China's major cities such as Shanghai.

But the government's reform programme aims to improve healthcare for all of its citizens, especially those in rural areas which have not benefitted as much as the major urban centres have in terms of health.

China's numerous pharma industry associations have now issued a joint statement urging the government to avoid making drastic price cuts, but influencing the direction of change in China is extremely difficult.

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