

# THE PROSPECTS FOR BRITISH LIFE SCIENCES AND PHARMACEUTICALS



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**Britain is beginning to contemplate its future after the two-headed monster – the unprecedented credit crunch and the deep economic recession – has done its worst.**

## **WHERE WILL THE FUTURE-FACING SKILLS, JOBS, EXPORTS AND PROSPERITY COME FROM?**

We have been saying for some time: 'It's the knowledge economy'. The creation and application of intellectual property. The training and attraction to Britain of highly skilled knowledge workers – scientists, technologists, engineers, creative types. High added value brain work to create globally competitive breakthroughs serving global markets.

## **DOES THIS SOUND LIKE ANY INDUSTRY YOU KNOW?**

The life sciences sector, and its most important channel of commercialisation, pharmaceuticals, is already a jewel in our economic crown. 70,000 pharmaceutical company employees support about a quarter of a million others – and similar numbers of

public or charity sector researchers are a key part of the effort. The UK has some of the best regarded bioscience universities in the world, working closely with commercial companies to translate the basic bioscience in which we excel into unique therapies. And about one in five of the world's leading medicines were discovered here. But is the sector a secure part of the future?

Businesses periodically conduct SWOT analyses – surveying their strengths, weaknesses, opportunities and threats. Let me do the same for our sector. With the situation we face, it helps no-one to paint an artificially rosy picture, so I'll speak straight from the shoulder.

Our strengths are clear and undisputed. A great track record in basic bioscience, with a disproportionate number of Nobel laureates. And a proven strength in aspects of 'translational medicine' – taking the basic breakthroughs and

turning them into so-called molecular 'leads', and turning these into candidates for clinical trial.

As technology has evolved, we have evolved with it. The UK has some of the best biologists looking for new generation medicines among the body's proteins and antibodies. And many of the most important breakthroughs in stem cell biology have been made here.

The NHS is also a strength – but in one main sense only. It is a single system (strictly speaking of course, four systems) with the ability to establish a lifetime relationship with patients and track the course of their treatments and their outcomes as almost no one else can.

Weaknesses, though, are beginning to show. We are no longer attracting more than our fair share of patients for clinical trials. Since 2000, the proportion of UK patients in global trials has dropped from 6% to 2%, which is actually less than our share of the world market (3%). This has happened despite strenuous efforts to build clinical research networks, simplify ethics committees, and 'talk up' the importance of trials for the future. The problem is not far to seek. As for any activity, competitiveness is a function of quality, cost and time. The

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quality of our investigators' work remains high, but – as aggressive competition emerges in Asia and Eastern Europe – our costs are prohibitive and our patient recruitment woefully slow.

We are also no longer a sought-after location for manufacturing. We do not even make the shortlist, when Singapore, Ireland and Bangalore offer tax breaks, regional grants and plenty of highly trained technicians. While some of the sector's manufacturing is routine and low added value, much is the very opposite – sophisticated bioprocessing, cell cultures, sterile handling, etc.

Before depression sets in, let's turn our eyes to the opportunities! Fundamentally, life sciences is still in its infancy. Yes, we have already cracked some of the basic and widespread health problems – most bacterial infections, blood pressure and lipid control, replacing insulin for diabetics. And these have generated large 'blockbuster' markets that have fuelled the industry's growth around the world.

But for the tough targets – targeting cancer cells and eliminating their last traces, turning back the clock on degenerative diseases like Alzheimer's and arthritis – we are still in the foothills. And to crack these problems needs penetrating insights into basic biology – how genes are controlled, how proteins interact, how pathways come together – the kind of stuff we do in Britain as well as anyone.

Now for the threats. Some would say we are lucky. Demand for medicines is one of the more recession-resistant, and the larger pharmaceutical companies are not running out of cash. But the UK

pharmaceutical industry is far from immune to the forces of globalisation. In the UK, we face competition from other parts of the world, striving to establish themselves as leaders in bio-science research and investing heavily in their science knowledge base. And a number of these competitors have fast-growing future markets.

Perhaps the biggest threat, however, rests closer to home. It is the risk that the UK Government, distracted by rigours of handling the current downturn, fails to take enough action to boost life sciences. We need to reassure the global leaders of the pharmaceutical industry that the UK offers a long-term, stable environment in which to do business, and ignite uptake of new medicines, in order to repair some of the damage done when the last PPRS deal, which governs the price of medicines sold to the NHS, was renegotiated half-way through its life-cycle.

Let's be blunt. Research and development expenditure in the UK represents nine per cent of the industry's total worldwide expenditure. However the UK represents just three per cent of the total global sales for medicines. So as a nation, the UK is over-represented by a factor of three to one when it comes to the spend on researching medicines against the spend on buying them. This imbalance won't have escaped the attention of global leaders who, in keeping with their counterparts in other industries, are having to make very tough choices about the future direction of their businesses.

So, if we are to have knowledge-based industries on which Britain's future can be anchored well beyond this recession, then the Government needs to pay urgent attention to the research-based pharmaceutical

industry for two reasons:

1) The larger company end of the life science spectrum is in the midst of a global restructuring that started well before the recession and will go on long after it. The combination of major patent expiries and falling pipeline productivity is forcing rationalisation of research, scrutiny of trial costs and restructuring of manufacturing facilities.

2) At the smaller company end, things are frankly dire. Small bioscience-based enterprises are struggling to refinance themselves, irrespective of the potential of their research portfolios. These are increasingly important as sources of new products for the whole industry.

So Britain urgently needs to reinvigorate its life science strategy. Yes, we've made progress – greater public investment in research, new clinical networks in the NHS, the PPRS innovation package – but we all know this is not enough to secure our place in the future.

First, we need to carve out a uniquely attractive role for the UK in the new era of open innovation. Most major companies are realising that their partnerships with innovative academics and SMEs will be critically important in new discoveries and in translating them into candidate products. And it is at this end of the innovation pipeline the UK's skills are strongest. We need to build strong clusters of collaboration, through new funding mechanisms, new academic incentives, and new infrastructure initiatives.

Second, we must tackle much more urgently the disconnect between research

and practice in the NHS. The recent decision to put research goals into the NHS operating framework is a good start. But we all know that the combination of NICE's focus on keeping out expensive new therapies and the NHS's reluctance to adopt them kills the UK's potential role as a champion of innovation.

Here, a new mindset is needed. NICE needs to be turned around to become innovation-responsive: it is clear to me that the cost per QALY straightjacket is still constraining thinking. We urgently need broader measures of value.

As far as uptake of medicines in the NHS is concerned, following the Darzi Review we have the ingredients of a brighter future. But we and the NHS need to grasp this future with both hands before the likely squeeze on NHS expenditure hits in the next financial planning period.

Finally, jobs. As mentioned above, the industry supports over 300,000 jobs, directly or indirectly, and these are some of the highest added value jobs around. In recent years we have missed out on most of the new wave of process and manufacturing jobs as biological products have mushroomed. We need to put in place the tax arrangements and infrastructure that will attract new bioprocessing investment and jobs to Britain, and so exploit here the intellectual property that is so often created here.

Let me finish with good news. The Government appears to be listening. As I write, we are preparing for a summit meeting with the Prime Minister, attended by global CEOs. Let's hope it leads to meaningful action.