The pharmaceutical industry’s contribution to the UK economy and beyond
Executive Summary

Britain’s strong intellectual heritage in bioscience, the receptive commercial environment fostered by the PPRS, and a highly skilled workforce have, for many years, allowed the UK generally and the NHS in particular to benefit from modern pharmaceutical discovery and development. Indeed, since 1948 – when the Government established the NHS – pharmaceutical companies have worked in a highly successful partnership with politicians from all sides, policy makers and healthcare professionals to ensure that the most effective innovative medicines reach patients as quickly as possible.

For more than 60 years, this partnership has encouraged pharmaceutical R&D, manufacturing and marketing in the UK. In turn, the pharmaceutical sector’s increasing importance bolstered the economy, generated high-quality jobs, and supported local communities across the UK. The partnership has led to a remarkably successful R&D programme that has produced numerous medicines responsible for reducing mortality and morbidity, while enhancing quality of life, for countless patients and has contributed heavily to Britain’s collective scientific knowledge. The opportunity to participate in clinical studies keeps our UK-based healthcare professionals at the cutting edge of medical science and practice, as well as augmenting their knowledge, for the benefit of all patients.
The pharmaceutical industry remains a jewel in the UK’s scientific and industrial crown. This report helps to illustrate this point by summarising the pharmaceutical sector’s enormous contribution to the UK economy. Britain’s future economic prosperity depends on fostering strong, vigorous and well-supported knowledge-intensive industries. By most measures, the pharmaceutical sector is Britain’s most successful research-based industry. Indeed, pharmaceutical companies add more economic value than any other sector.

An increasing contribution to the UK economy
Economists use Gross Value Added (GVA) to represent the contribution made by businesses, industries or sectors to the UK’s national income – effectively an industry’s contribution to GDP. To estimate GVA, economists measure output generated by the business, industry or sector and deduct goods and services that producers use to create their output. GVA includes labour costs and an operating surplus (or loss), which meets the cost of capital investment, financial charges and shareholder dividends. Figure 1 shows that the GVA produced by the pharmaceutical sector has continued to rise over recent years.

The economic value of the pharmaceutical industry continues to rise

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Figure 1
Economic value (Gross value added)

- Pharmaceuticals
- Motor Vehicles
- Basic Chemicals
- Medical and Surgical Equipment

Source: ONS Annual Business Inquiry
Leading the field
Pharmaceutical companies are making an increasing contribution to the UK economy. Indeed, the pharmaceutical sector now makes a greater contribution than other high-tech industries. The pharmaceutical sector’s relative importance becomes even more obvious when the analysis considers productivity – that is: the Gross Value Added (GVA) generated by each employee (figure 2). Pharmaceutical companies make important economic contributions throughout the UK.

Over 500 pharmaceutical organisations operate in Scotland (10% of which have academic links), employing approximately 30,500 people within the life-science sector. In the Highlands and Islands alone, medicine development and medical technology employs 1,800 people and is worth £130 million.

The pharmaceutical industry makes the UK more prosperous than would be possible if other industrial sectors used the same resources. In other words, the people and capital employed in the pharmaceutical industry earn more income for the UK than if they were in any other sector of the economy.
Case study
Pharmaceutical companies’ contribution to regional economies

In addition to the direct effect of providing health benefits to the population, the indirect effects of the pharmaceutical contribution are vast. During 2008, pharmaceutical-related businesses added nearly £380 million to the gross value of the Scottish economy and contributed £1.34 billion to gross output. This regional investment was extended through the employment of more than 11,000 people in Scotland – with salaries totaling in excess of £200 million. Many of these are high-value jobs: people working in pharmaceutical companies and related businesses earn around 20% above the average level of gross wages and salaries in the wider Scottish economy.

The trading and manufacturing sector within the pharmaceutical industry is estimated to contribute £121,000 per employee to the gross output of the Scottish economy.

The pharmaceutical contribution is also extensive in Wales: the 322 bioscience companies based there employ 15,000 people and contribute £1.3 billion to the region’s economy. Likewise, in Northern Ireland, biopharmaceutical companies employ approximately 4,000 people.

The pharmaceutical industry generates a significant GVA per head

![Graph showing GVA per head for various high-tech sectors in the UK during 2008](image_url)

Source: ONS Annual Business Inquiry, 2008

Figure 2
GVA generated by each employee in various high-tech sectors in the UK during 2008
In 2008, the pharmaceutical sector’s contribution to the balance of trade was the greatest of 9 major industrial sectors, up from 5th in 1975 and 3rd in 1990.6

Generating a positive trade balance
The trade balance refers to the difference between the value of UK exports to other countries compared with imports from them. A trade deficit means that the value of exports is insufficient to pay for the country or sector’s imports. In March 2010, the UK’s trade deficit for all goods and services was £3.7 billion in just one month.6 In stark contrast, the pharmaceutical sector has, over the past decade, generated an ever-widening trade surplus (figure 3), reaching almost £7 billion in 2009.7 In fact, in 2009, the pharmaceutical sector’s contribution to the balance of trade was the greatest of 9 major industrial sectors, up from 5th in 1975 and 3rd in 1990 (figure 4).8

The trade balance is widening

![Graph showing the pharmaceutical sector’s trade balance comparison with other industrial sectors over the years.](figure3)

Source: OHE figure based on HM Customs and Excise data. The pharmaceutical sector’s trade balance compared with other industrial sectors8
The pharmaceutical industry generates a positive trade balance*

*Sectors displayed are top and bottom 10 in terms of trade balance.
Source: HM Revenue and Customs, UK Trade Info

Figure 4
The pharmaceutical sector’s trade balance compared with other industrial sectors
Case study
An ‘open-innovation’ biotechnology park

The pharmaceutical industry brings one of the highest levels of innovation and development to the UK. Working together with the UK Government, GlaxoSmithKline are helping to create a science park for early-stage biotechnology research. In a £38 million partnership that includes the Wellcome Trust, the Technology Strategy Board and the East of England Development Agency (EEDA), the site aims to pioneer a new model of ‘open-innovation’ that will allow companies to share access to specialist skills, equipment and expertise with the end goal of stimulating innovation in pharmaceutical development. In the longer term the new centre could be home to up to 1,500 scientists. GlaxoSmithKline provided land, facilities and investment worth almost £11 million and the Wellcome Trust will provide a further £6 million. Working together, the pharmaceutical industry is aiming to foster innovation and continue to contribute to the health of the UK – in terms of both patients and economics.9

The pharmaceutical industry employs 72,000 people, 27,000 of them in R&D. The total number of employees is fluctuating but R&D numbers are relatively stable.10 Pharmaceutical R&D and manufacturing create many highly skilled jobs, both nationally and locally – as well as supporting local communities in many other ways. In 2008, pharmaceutical companies directly employed more than 72,000 people,10 with over 200,000 more employed indirectly. However, while the numbers of people employed in pharmaceutical R&D in the UK is relatively stable, the total number of employees is fluctuating (figure 5).10 This fall in numbers of non-R&D personnel reflects a decrease in sales and marketing roles and a decline in pharmaceutical manufacturing in the UK.

Creating a significant spill-over effect
The UK’s pharmaceutical sector invests approximately £11.8 million every day in R&D (figure 6).11 In fact, the pharmaceutical industry invests more in R&D in the UK than any other industrial sector. This investment does not only benefit pharmaceutical companies – the R&D investment made by one pharmaceutical company often stimulates innovation elsewhere in the sector or the economy more widely. Knowledge generated by R&D can flow from one organisation to other companies in the same sector; at the simplest level, scientists employed by the pharmaceutical sector share knowledge at congresses and in

Employment in R&D is relatively stable

Figure 5
The number of people employed by the UK pharmaceutical sector between 1995 and 2008

—— Total employees
—— R&D employees

Source: ONS Annual Business Inquiry and R&D Survey6
publications. In many cases, the cutting-edge knowledge flows to other sectors as well as public and charitable organisations. This spill-over effect generated by pharmaceutical R&D is estimated at between £120 million and £360 million a year.\(^\text{12}\)

It is clear that the UK would be, literally, much poorer without the pharmaceutical industry’s economic contribution. The pharmaceutical industry is part of our nation’s history and identity – one of the remaining jewels in the British scientific and industrial crown.

**Beyond medicines**

But the value extolled by the UK’s pharmaceutical industry extends farther afield – beyond developing mortality-reducing, life-transforming, innovative medicines. The sector has a much broader impact in the UK and beyond, from extensive support of ongoing medical professional education, to joint working projects that help the NHS achieve better patient outcomes, to supporting local communities or to partnering with UNICEF to supply vaccines to the developing world.\(^\text{13}\)

**Medicines and the developing world**

Companies in the UK are among those leading the way in both the effort and resources needed to tackle developing-world diseases. Many have established private-public health partnerships and work closely with governments across the developing world to secure universal access to healthcare for all. The emphasis of those public-private partnerships is on building local capacity to reinforce local health services. Moving beyond the supply of medicines, companies are providing training for health workers, education programmes, logistical infrastructure and research into neglected diseases as part of a wider strategy supporting poorer countries.

In the UK, ABPI members work closely with International Health Partners (IHPUK), a dedicated charity providing medicines to developing countries and countries affected by natural disaster. This partnership, for instance, succeeded in securing vital supplies of medicines within days following the Haiti earthquake, and IHPUK have so far secured over £7 million worth of medicines to reach the victims of floods in Pakistan.

**In partnership with the NHS**

Increasingly, pharmaceutical companies work with the NHS to ensure local health priorities are met, patient outcomes are improved and local NHS organisations can meet their objectives. Guided by appropriate governance, including the ABPI Code of Practice, these joint-working projects ensure a win: win: win for patients, the NHS and the industry.

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**R&D expenditure continues to rise**

![Composition of UK pharmaceutical R&D expenditure](Figure 6)

*Source: OHE calculations based on R&D in UK businesses (ONS)*\(^\text{14}\)

*Figure 6*

*Composition of UK pharmaceutical R&D expenditure*
The Pharmaceutical Oncology Initiative (POI) offers a striking example of a partnership that supports the NHS’s strategic objectives and ensures that as many cancer patients as possible receive timely treatment. The POI aims to ensure that every cancer patient in the UK can access the most appropriate medicines at the most appropriate time for each malignancy. The POI believes that everyone in the UK should have the best possible chance to fight cancer regardless of where patients live. Indeed, the POI believes that survival among the UK’s cancer patients should be comparable to the best in Europe.

Working with patients

The pharmaceutical industry is strongly committed to helping patients to participate fully in decisions about their care and, as far as practicable, self-manage chronic conditions. Provided companies follow strict guidelines, they can support disease-awareness programmes, work with patient groups and fund specific patient-support programmes. Through these programmes, pharmaceutical companies have gained considerable understanding of, and knowledge about, the everyday health issues that patients face: valuable insights that in turn help these companies to develop medicines that ever more closely meet patients’ needs.

Indeed, many initiatives supported by the pharmaceutical sector directly or indirectly support expert patient programmes. These programmes increase patients’ confidence that they can manage their disease, as well as helping improve quality of life and clinical outcomes. Furthermore, GP consultations, attendances at Accident & Emergency departments, and outpatient appointments can decline among patients that participate in expert patient programmes.

Case study

C-PORT supports Cancer Networks

The Pharmaceutical Oncology Initiative (POI), a group of pharmaceutical companies with an interest in cancer, worked with the National Cancer Action Team and NHS Improvement to develop the Chemotherapy Planning Online Resource Tool (C-PORT). Launched during 2007, C-PORT is a web-based simulator that enables cancer units to effectively plan capacity and improve access to medicines. Most Cancer Networks and more than 100 hospitals have now implemented C-PORT, supported by NHS and industry facilitators. By March 2009, the NHS had run more than 2,800 simulations through C-PORT.

Users input key variables – such as treatment regimens, patient flows, resource levels and working methods – and the system models the number of patients who can receive chemotherapy, estimates waiting times and identifies how to optimise the use of available resources. C-PORT, which has won numerous awards for innovation and joint working, enables chemotherapy units to review resources, model the impact of changes in resource utilisation and understand the consequences of investment decisions and choices.

For example, the West London Cancer Network used C-PORT to help save 1,299 hours of nursing time and 2,184 hours of chemotherapy time over six-months by investing in new staff and introducing more-efficient practices, including transferring some services to the community. The Norfolk and Norwich University Hospitals NHS Foundation Trust used C-PORT to help achieve an 11% productivity increase without additional resources. Before using C-PORT, the network’s workload was high but inconsistent, which made planning difficult. The trust used C-PORT to model various scenarios, such as pharmacy preparing regimens a day ahead, which allowed treatment earlier the following day, rearranging nurse shifts, and smoothing patients’ appointments to avoid an influx at one time. After instigating the changes, patient capacity increased from 880 to over 1,000 per month. Despite being near maximum capacity, the unit managed the greater caseload without increasing resources. Furthermore, delays declined and the unit ‘felt’ less congested.

The POI is just one of numerous joint-working projects between pharmaceutical companies and the NHS.
Furthering education

The pharmaceutical industry also believes in the importance of enhancing education, stimulating academic research and improving the skills of patients and healthcare professionals.

Some of the basic science that forms the foundation of modern medicines flows from academic research. GSK has compounds that do not fit into the company’s traditional R&D structure. By giving university researchers a project leadership role, GSK hopes to improve on the traditional way in which industry accesses academic expertise. Academic researchers investigate a pharmaceutical’s fundamental properties, which may reveal potential uses that pharmaceutical companies might have overlooked. Many pharmaceutical companies also work with schools and universities to offer training opportunities through graduate and intern programmes, as well as PhD and post-doctoral opportunities within a fully resourced commercial environment.

Many pharmaceutical companies help enhance specific clinical skills. In one case, the East Anglia Ambulance NHS Trust worked with Boehringer Ingelheim in a programme where experienced thrombolytic nurses trained ambulance paramedics to use this life-saving intervention in heart attack patients.

More widely, pharmaceutical companies also fund leadership, coaching and team-building projects and help develop communication and presentation skills for NHS clinicians and managers.

Case studies

Strength in working together

To deliver the best possible treatment for patients, the pharmaceutical industry and the NHS have come together to develop programmes that benefit all parties. The ABPI Outreach Programme, which was set up in 2006, aimed to establish at least nine joint-working projects between NHS organisations and pharmaceutical companies in areas that the NHS regarded as high priority:

- Inforce (Industry and Nottingham NHS Focus on Reducing COPD Exacerbations) aimed at reducing the number of avoidable admissions to hospital for COPD exacerbations and related illnesses. An audit identified cases where sub-optimal care might have contributed to the exacerbation. Based on the findings, the joint-working project redesigned care pathways and guidelines, developed a detailed primary care education programme for healthcare professionals and introduced personalised self-management plans for patients.

- East Lincolnshire Primary Care Trust collaborated with GlaxoSmithKline, Boehringer Ingelheim and Pfizer to target COPD. The programme involved patient screening, training of clinicians and set-up of COPD clinics. The Primary Care Trust and the three pharmaceutical companies jointly funded the project and successfully managed to reduce the number of admissions for COPD by 23%.

Joint projects are becoming increasingly popular as their success is observed. GlaxoSmithKline also worked together with Salford Primary Care Trust to develop and implement a best-practice COPD management guideline, a bespoke health professional educational programme and an automated patient audit tool. To date, improved care avoided an estimated 792 hospital admissions, saving £167,000 and ultimately delivering better patient care.
Case studies
Improving medicines use amongst the elderly

Many elderly people suffer multiple health issues. As a result, elderly patients often take several medications (polypharmacy), which increases the risk of adverse events and raises the prospect of potentially hazardous interactions between pharmaceuticals. In order to address this issue, a consortium of 11 pharmaceutical companies worked with the Head of Medicines Management in Somerset PCT to develop and deliver a medicines review service – called MedCheck – for elderly patients who are taking numerous medicines for multiple conditions when discharged from community hospitals. MedCheck aims to reduce medicines waste and readmissions caused by medicine-related complications.

Partnerships between the pharmaceutical industry and the NHS, like MedCheck, have been shown to be successful in bringing benefits to patients and the NHS. A further example of such a successful programme can be seen in a pilot study, which evaluated the value of employing an intermediate care pharmacist and involved 30 patients admitted to two community hospitals in Somerset. Pharmaceutical companies helped fund the pharmacist and provided project management expertise, while the PCT provided pharmacy skills.

Experiences gained during MedCheck and the pilot pharmacist study resulted in recommendations to the PCT regarding ways to improve commissioning; ideas on how to improve communication systems, policies and procedures; and the importance of encouraging the wider use of medication reminder charts. The PCT became a pilot for the Care Quality Commission inspection that evaluated post-discharge procedures.

Supporting local communities
Numerous companies support initiatives that aim to help their local community. For example:

- As part of the Novartis Community Partnership Day each year, employees participate in a variety of initiatives, ranging from painting a local youth club, gardening at a school, painting and decorating at a local hospice to fundraising activities to raise money for local charities.
- Pfizer’s ‘Reaching Out’ and ‘Health Relief’ programmes encourage colleagues to take up to five days paid leave a year to volunteer. These programmes not only support charities and other stakeholders through practical volunteering skills, but also in more innovative ways, allowing colleagues to focus on transferring business skills.
- The Pfizer UK Foundation supports groups working at a community level to tackle local inequalities and to date has provided over £6m to 219 groups ranging from community groups and local and national charities to the NHS and local authorities. It also focuses on helping these groups on a practical level, by providing opportunities and platforms for groups to showcase their work, share learnings and network with a view to building capacity, replicating success and maximising impact.
- Abbott’s “Caring for our Community” programme has proved to be mutually beneficial: providing local not-for-profit groups with much needed help and resources, whilst allowing employees to apply their skills and knowledge to improve local communities through teambuilding projects.
- Pulse – the GlaxoSmithKline Volunteer Partnership – allows highly qualified staff to work with a chosen non-governmental organisation for up to six months. Furthermore, through the company’s Orange Day initiative, all staff can take one day paid leave a year to offer their time, knowledge and skills to local community projects.
- Napp’s Ambassador Scheme helps local schools with the teaching of science and engineering, creating fun and inspiring science experiences for young people as part of the national Science, Technology, Engineering and Maths Network (STEMNET). Napp employees, acting as Ambassadors, are allowed up to five days paid leave each year to support local schools.
Delivering more than medicines

There is no question that the pharmaceutical sector delivers more than just medicines. Medical innovation and commercialisation are, of course, at the core of the pharmaceutical sector’s business. Nevertheless, the pharmaceutical industry’s responsibilities extend far beyond discovering and developing new medicines. Pharmaceutical companies help enhance clinical and other management skills in the NHS, improve efficiency and perhaps most importantly help to empower patients. As a leading UK industry, pharmaceutical companies also support national and local economies. Most pharmaceutical companies play an active and positive role within their local community. Engaging with local people, the NHS and other stakeholders helps the pharmaceutical sector ensure that companies continue to address society’s evolving needs.
In summary

• The pharmaceutical industry delivers significant direct and indirect economic benefits, providing more economic value than any other industry sector

• The pharmaceutical industry’s contribution extends far beyond discovering and developing new medicines

• Close partnerships between the industry and the NHS will improve health outcomes.
The value of the pharmaceutical industry in the UK

The pharmaceutical industry delivers a significant contribution to the UK economy and the population as a whole. As an industry, UK R&D is responsible for producing around 16% of the world’s top-selling medicines, and provides medicines to UK patients at some of the lowest prices in Europe. It brings to the UK greater economic benefit than any other technology-based industry. Its greatest impact, however, is clear to see in the overall improvement in the health of the UK population.

- The pharmaceutical industry in the UK has consistently contributed to the health and economy of the nation
- The pharmaceutical industry in the UK must remain a world leader
- The pharmaceutical industry is worth investing in for the future

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