

Cambridge: driving growth in life sciences

Exploring the value of knowledge-clusters
on the UK economy and life sciences sector

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How collaboration in the Cambridge cluster is breaking new ground in science and driving economic growth

AstraZeneca has commissioned socio-economic research – in partnership with independent researchers, Development Economics – that seeks to articulate and quantify the economic impact of the Cambridge life sciences cluster.

A summary of our findings is included in this document. For more information, contact CambridgeInfo@astrazeneca.com.

Business clusters

Business clusters are dynamic networks of inter-connected organisations operating in close proximity. They are characterised by a high volume of interactions, where creative ideas collide that lead to new and innovative thinking.

There are over 30 business clusters in the UK, operating across a range of sectors such as financial services, engineering and motorsport. The UK's largest life sciences cluster – spanning London, Cambridge and Oxford – is one of the most important clusters in the UK and an integral part of the life sciences sector as a whole, providing over £8.4bn per annum for the economy and more than 24,000 high skilled jobs.¹

Cambridge: a world-class cluster

For the UK's vital life sciences sector, Cambridge is a particularly important location, with over 430 life sciences companies and organisations supporting a specialised workforce of more than 15,500 and contributing around £2.9 billion annually to the UK economy. The Cambridge cluster is underpinned by the presence of world-leading R&D taking place at the University of Cambridge and the specialist research institutes, hospitals and businesses established in the city.

By locating its strategic R&D centre and global corporate headquarters in Cambridge, AstraZeneca joins a growing number of businesses in a historic, thriving scientific community.

The rise of a world-class life sciences cluster in Cambridge also has an important contribution to make in meeting national healthcare challenges, including the delivery of innovative personalised health. Clusters foster a more collaborative way of working between international researchers, scientists, engineers, mathematicians and clinicians, interconnecting their wide range of expertise, knowledge and specialist skills.

The clustering of life sciences organisations can also improve the rate at which scientific discoveries are translated into viable medicines.

Dr Benjamin Hall, Royal Society University Research Fellow and AstraZeneca partner said: “Right now Cambridge is a growth engine for UK life sciences. Within the city there's an incredible range of work taking place, stretching from fundamental research to medtech and pharma. Its natural

¹ Economic values estimated in the report are measured in Gross Value Added (GVA)

collaborative atmosphere - facilitated by deep links between the university, business and research organisations - makes it an exciting place to be doing life sciences research. Supporting the future growth of this world-class cluster will be vital to the success of the UK's life sciences sector at large".

Growth opportunities in the Cambridge cluster

The Cambridge cluster is growing and has an opportunity for further expansion in the future. This is expected to be driven largely by growth in the number of scientific and research collaborations, and by the growth of new business spin-outs and joint ventures set up between large businesses and academics, and research institutes as well as SME partners.

If the cluster can grow unimpeded, it could generate an additional £1 billion per annum and provide an extra 6,000 jobs by 2032.

Growth of the Cambridge cluster is important in helping the UK life sciences sector compete with established clusters in the United States – in particular with Boston and San Francisco – as well as emerging clusters in Europe and in Asia.

Andy Neely, Pro-Vice-Chancellor for Enterprise and Business Relations at the University of Cambridge commented: "The life sciences play a central role in the Cambridge cluster. Connecting people - especially their skills and ideas - to finance, enables the cluster to grow and prosper. This report from AstraZeneca is a valuable contribution to our understanding of the Cambridge cluster, and demonstrates that the deep and lasting collaborations between businesses and our local universities are a crucial element underpinning the region's economic success."

It is encouraging that the UK Government acknowledges the role that the sector already plays in generating prosperity for the UK. Further growth in life sciences depends, in part, on the government continuing to provide support and funding for R&D in universities and investing in education and skills.

Possible constraints to growth

There are several considerations to address in relation to the future expansion and productivity of the Cambridge cluster.

At a national level, considerations and their impact include:

- securing sufficient domestic R&D funding to replace funding that had been expected from EU programmes
 - o not addressing this could cost nearly 700 jobs and £138 million p.a. in net terms by 2032
- ensuring the UK continues to attract and have access to the world's best R&D talent
 - o not addressing this could result in the cluster losing around 3,000 jobs £445 million p.a. by 2032
- continued access to venture capital and early stage growth funding
 - o not addressing this could also reduce the growth of the cluster by over 1,600 jobs and diminish the economic output by £241 million p.a. by 2032

Overall, the potential effect of these national factors in combination could result in the loss of over 4,300 jobs and over £600 million by 2032. In cumulative terms, the overall loss of economic output over the 2017-2032 period could amount to £4.57 billion (2017 prices).

At a local level, the principal consideration is transport infrastructure – most notably the recognised need for a new railway station to strengthen connectivity into and across Cambridge, and accelerated progress to complete the East-West rail link between Cambridge and Oxford. There is also a need to address challenges in housing supply to accommodate the predicted growth in workforce in Cambridge.

Overall, failure to address these local challenges could impact the Cambridge cluster negatively – in the order of 520 jobs and around 4,000 net jobs for the sub-regional economy. In addition, under this scenario there is likely to be a reduction in the annual value of economic output worth around £650 million p.a. by 2032 compared to the levels expected if the cluster grows unimpeded.

Over the 2017-2032 period, the cumulative amount of net economic output that is expected to be lost, assuming that none of the possible constraints to growth at both local and national levels are taken into account, could be worth just over £7.9 billion (using 2017 prices).

Driving future growth in the life sciences sector

The Cambridge cluster is already a vital contributor to the UK's success through world-class science. A collective commitment to its future development is vital to ensuring that innovations in science become better medicines for patients, through a visionary and exciting strategy for growth and prosperity in the UK.

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Appendix

A note on the methodology

The research estimated that the current (2017) value of the Cambridge Life Sciences cluster is £2.92 billion in gross terms and £2.36 billion in net terms. It also estimated that the number of jobs attributable to the cluster is more than 15,000. The estimates are based on various data sources, supplemented by additional analysis to bring the figures up to a baseline for 2017.

To develop future estimates of expected contributions for jobs and GVA under alternative scenarios, it was necessary to make assumptions about the differential rates of growth for the number of direct and indirect jobs attributable to the future growth of the cluster. This in turn was also linked to assumptions about the number of spin-out businesses, collaborations and other types of new business formation, as well as the average growth and survival rates existing (as of 2017) businesses located in the cluster. The specific assumptions made about these variables differs across each of the scenarios presented in the report.

