



TOWARDS A LIFE SCIENCES STRATEGY FOR THE EAST

June 2024

“Be Part of the Region”

A Unifying Vision for the East of England

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ACKNOWLEDGEMENTS

The Eastern Powerhouse is an independent business-led membership body. We platform the whole of the East as a single interconnected region, encompassing its coastal towns, rural villages, and world-class cities. Our aim is to drive economic growth, invest in skills, innovation, and transport and as a result raise productivity across the entire East of England. Achieving this aim will help reduce social inequalities and deprivation, by raising overall prosperity levels and increasing opportunity and access to higher paid employment for all.

We would like to thank Prashant Shah, Roz Bird and Sally Ann Forsyth for their contributions to this report.

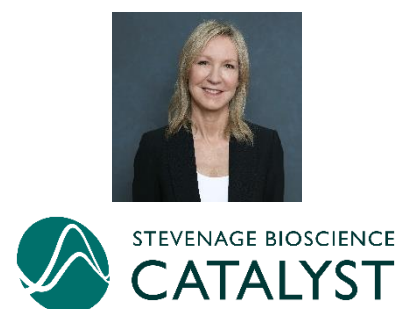
Prashant Shah is co-CEO and co-founder of o2h group, leading the development of the Mill SciTech Park, supporting the creation of innovative life science and tech-bio companies. Prashant's CV includes a current portfolio of positions including as chair of Form the Future CIC as well as board positions at the UK Science Park Association and DeepMirror. He is also a driving force behind community-focused initiatives such as Cambridge Wide Open Day, supporting the developments in the Life Science sector in sustainable growth and equity for all stakeholders.



Roz Bird joined Norwich Research Park as Chief Executive Officer of Anglia Innovation Partnership, the science park management company, in May 2022. Roz has had a very successful career managing urban regeneration projects and science parks in Cambridge, Silverstone, Milton Keynes and Bristol. She joined AIP LLP after 15 years with MEPC Ltd – a commercial property company – where she was commercial director. Previous to that she was business development manager at the UK Science Park Association.



Dr Sally Ann Forsyth OBE is CEO of Stevenage Bioscience Catalyst and NED of Life Science REIT. Sally Ann has been responsible for the strategy, growth and development of four internationally recognised science clusters: Harwell Oxford, Colworth Science Park, Norwich Research Park and Stevenage Bioscience Catalyst. She began her career with Unilever where she was head of Strategic Alliances and part of the founding team of Unilever Ventures. She gained her property experience through Goodman International where she was Director of Science Parks responsible for the development and management of their UK portfolio. In 2020 she was awarded an OBE for services to Business and Science.



FOREWORD BY GEORGE FREEMAN MP



The East of England is home to some of the world's most exciting and innovative industries in science and technology. The Life Science sector in the East is arguably the most successful cluster outside of the United States, attracting record levels of investment into new start-ups and scale-ups. While most of this development in Life Science has occurred within and around Cambridge, and its world-class universities, the phenomenal growth of the sector spreads deeper into the region, including Norwich Research Park and Stevenage Bioscience Catalyst.

There is now an opportunity to build on this growth, to extend the reach and influence of Cambridge, to integrate this expansion into a greater innovation arc that can connect both east and west as well as north and south of the region. Unlocking this growth can open up the full potential of the East. Better and evolving connectivity, that can attract people to live and work in the region, are key to the expansion and the sustainability of the Cambridge cluster, providing the space for industry and families to grow and breath.

There are other reasons why we need to think about this expansion as part of a regional strategy. The East is characterised by substantial pockets of deprivation that create deep spatial inequalities and regional divergence. Poor connectivity – transport and digital infrastructure – exacerbate these problems. Coastal towns and rural villages do not feel part of the research and innovation that Cambridge and other research parks are driving. Not everywhere can become a research cluster or dormitory-commuter village. But a combination of large parks and smaller incubator spaces connected along transport corridors and into the rural heartlands of the Fens, Norfolk, Suffolk, Bedfordshire, Essex and Hertfordshire could provide a model of growth that we should embrace. This would solve a lot of policy problems about rural viability and sustainability. This should be the vision for growth in the East – not just in life science.

Another benefit of greater integration between these centres of life science in the East is greater technology convergence. We need to stop thinking in silos to provide the synergies between different expertise. We need to connect the 'ABCDE' of Science and Technology across the East (Agritech – Biotech – Cleantech – Digital – Energy) to unleash potential and spread opportunity. Cambridge has world leading specialism in genome research and computer science. Norwich has strengths in non-human life sciences, food and energy. Stevenage is the leading location in Europe for Cell and Gene technology. We need to unlock Cambridge so that it can flourish and grow but also connect to the wider east. Not only do we need better transport infrastructure, but we also need to create career pathways for more local people to access opportunities in this extraordinary economy.

1 INTRODUCTION AND BACKGROUND

The purpose of this paper is to draw attention to the important clusters in Cambridge, Norwich and Stevenage and how they can form the basis for a regional Life Science Strategy creating investment, jobs, and growth for the East of England and UK PLC.

Life sciences industries are one of the nation's key strategic sectors where the UK has a clear longstanding strength and comparative advantage. It was worth over £94 billion to the UK economy in 2021, a 9% increase on the year before, and projected to grow globally.¹

Life Sciences encompass a broad range of disciplines, technologies and businesses including, R&D intensive activities and manufacturing.² In terms of the number of businesses and employees Life Science industries are relatively small compared to other sectors but they represent a disproportionately high share of the UK's gross value added (GVA). In 2019 pharmaceutical products accounted for 3 per cent of UK exports and 1 per cent of total UK gross value added, this despite the pharmaceutical industry's labour-intensive supply chain being in India or China. Smaller, but innovative, Life sciences industries (i.e. pharmaceuticals) accounted for 1 per cent of GVA (2019) and 1 per cent of employment.

In recognition of the sector's strategic importance to the UK economy the Chancellor announced, in May 2023, a £650 million 'Life Sci for Growth' package bringing together different policies to stimulate scientific innovation, discovery, and commercialisation.³

¹ J De Lyon et al., Enduring Strengths: Analysing the UK's current and potential economic strengths, and what they mean for is economic strategy at the start of the decisive decade, Resolution Foundation, April 2022.

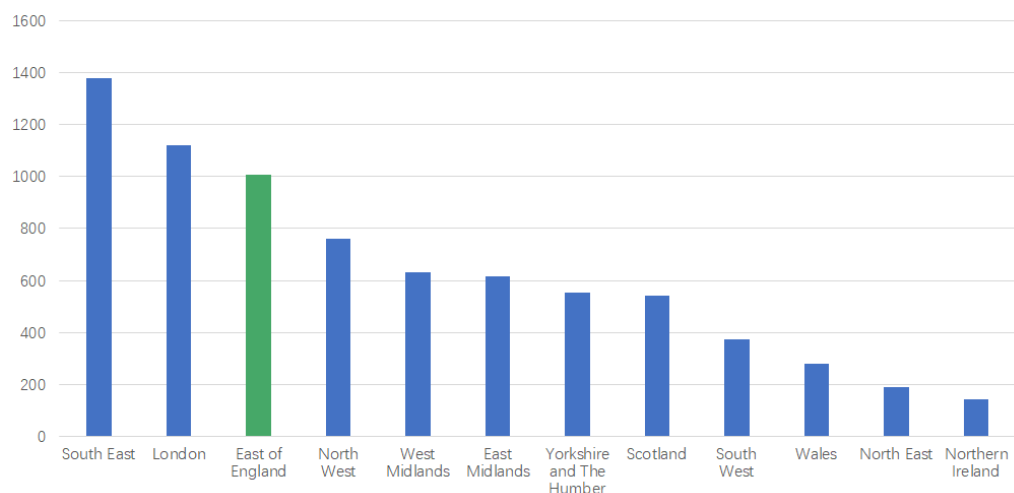
² The Office for Life Sciences definition includes the following manufacturing activities: basic pharmaceuticals; pharmaceutical preparations; irradiation, electromedical and electrotherapeutic equipment; medical and dental equipment and supplies; as well as research and experimental development on biotechnologies. Office for Life Sciences, Bioscience and health technology sector statistics 2019, August 2020.

³ [Chancellor of the Exchequer Jeremy Hunt's announcement, 25 May 2023.](#)

2 LIFE SCIENCES IN THE EAST OF ENGLAND

According to official sources, there are 1,007 life science business in the East of England, 13.3% of the UK total (7,599). Approximately 40% of all businesses in the East are located in Cambridge (406 companies).

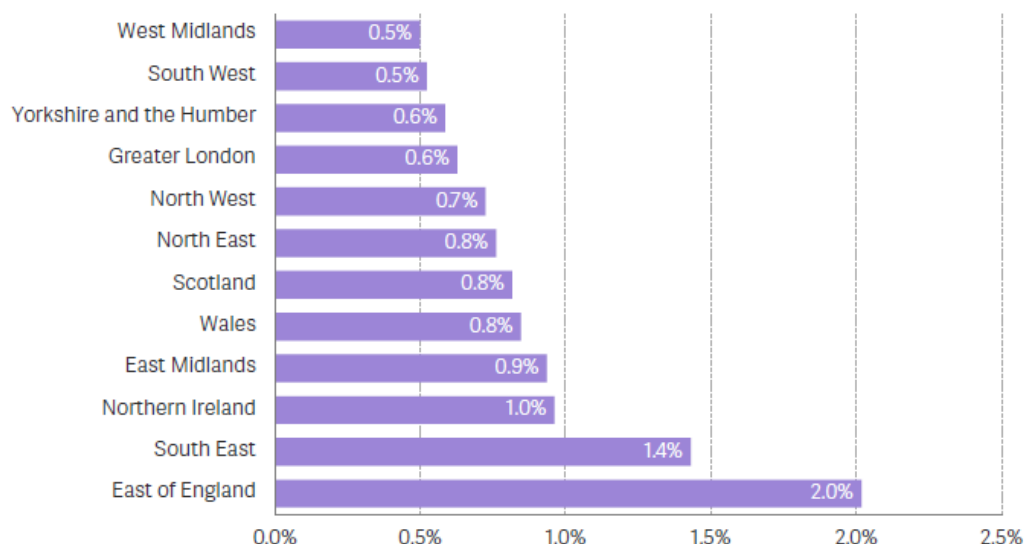
Figure 1: Number of life science business across all regions and nations in the UK



Source: Bioscience and health technology sector statistics 2021 (Office for Life Sciences)

In terms of employees, Life Sciences industries are more concentrated in the East and South East of England. Employees in the strategic sectors are much more highly educated than average, with the proportion of workers holding a university degree almost twice as high as the rest of the economy.

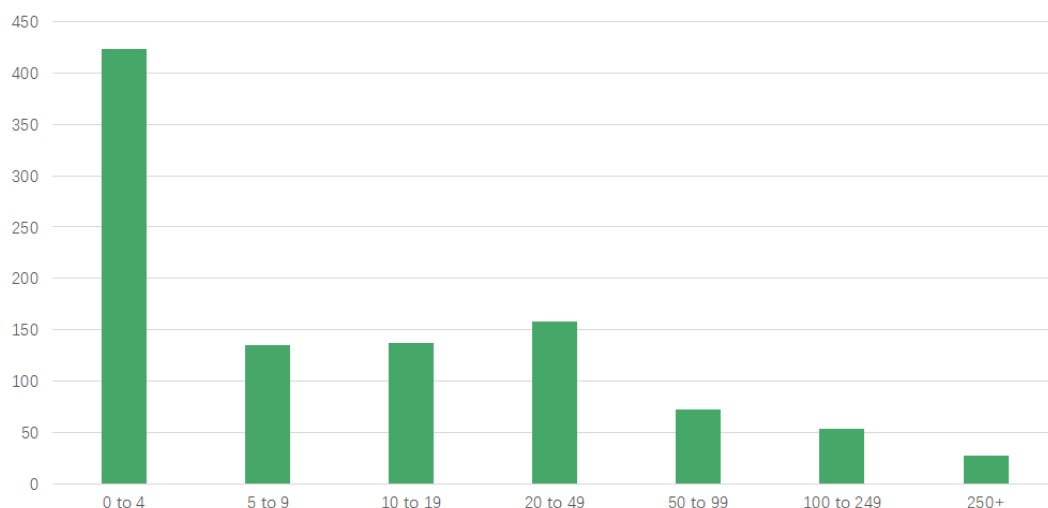
Figure 2: Proportion of workforce employed in Life sciences industries, by NUTS1 regions: UK, 2022



Source: ONS, Labour Force Survey (Resolution Foundation analysis)

Most Life Science industries in the East are micro-businesses, employing less than 10 people. This profile is consistent with the size of Life Science businesses across the UK.

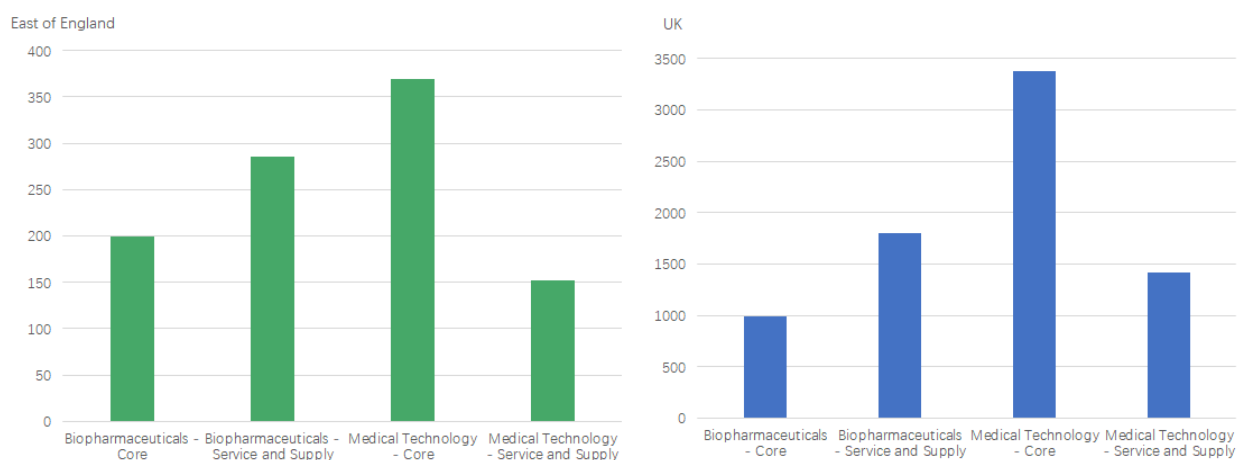
Figure 3: Number of businesses by the size of the company in the East of England



Source: Bioscience and health technology sector statistics 2021 (Office for Life Sciences)

According to official data there are two principal sectors of life science business: Biopharmaceuticals and Medical Technology. In the East of England, 48.3% of all firms are Biopharmaceuticals, and 51.7% are Medical Technology, while in the UK, 36.8% are Biopharmaceuticals, 63.2% are Medical Technology. Each principal sector can be divided into two parts: Core, and Service & Supply.

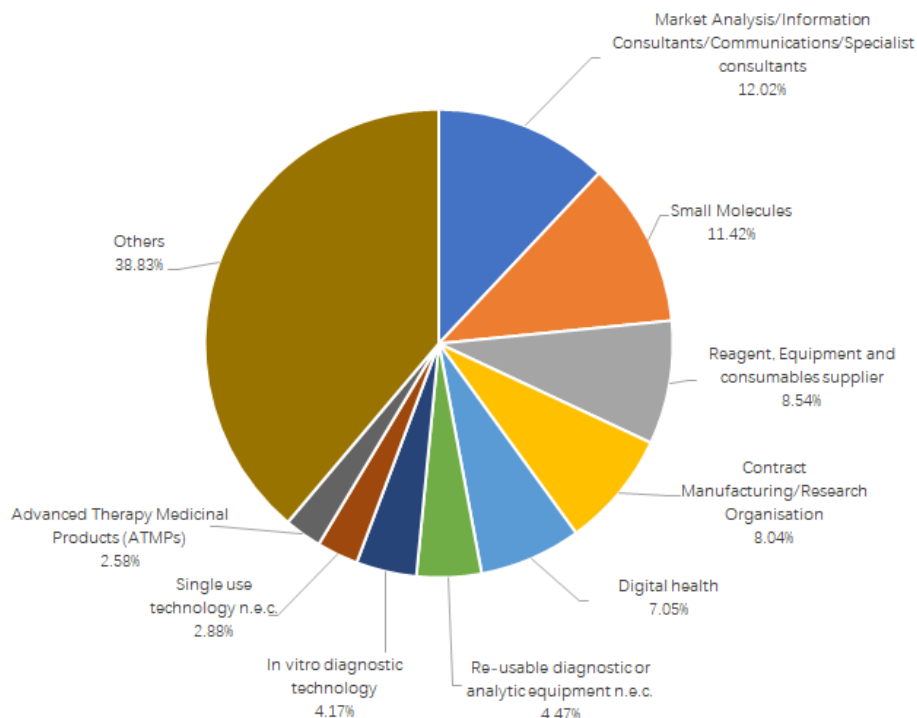
Figure 4: Number of life science business by sector in the East of England and the UK



Source: Bioscience and health technology sector statistics 2021 (Office for Life Sciences)

In terms of market segment, the largest sub-sector among Life Science businesses in the East are those providing Market Analysis/Information Consultants/Communications/Specialist consultants (12.02%), followed by Small Molecules (11.42%).⁴

Figure 5: Proportion of life science business by segment in the East of England



Source: Bioscience and health technology sector statistics 2021 (Office for Life Sciences)

Note about data sources:

The above analysis is based on official data sources from the Office for Life Sciences. However, there are emerging sectors in non-human life science that are not so easily defined and understood using standard industrial classifications (SIC-codes), and which are not identified in official datasets (e.g. IDBR data sets).

According to a recent research publication⁵ those life sciences that do not address human health could more helpfully be referred to as ‘modern industrial biotechnology’. Using this

⁴ “Others” here includes Information systems specialists, Regulatory Expertise, Assistive Technology, Medical Imaging/Ultrasound Equipment and Materials, Therapeutic Proteins, Antibodies, Orthopaedic Devices, Clinical Research Organisation, Hospital hardware including ambulatory, Surgical Instruments (reusable) n.e.c., Analytical Services, Mobility Access, Drug Delivery, Formulation/Drug delivery specialist, Vaccines, Recruitment, Anaesthetic and respiratory technology, Cardiovascular and vascular devices, Contract design, Infection Control, Investment Companies, Logistics and Packaging, Ophthalmic Devices/Equipment, Patent and Legal specialist, Wound Care and Management, Blood & Tissue Products, Dental and maxillofacial technology, Radiotherapy equipment, Training, Neurology, Assay developer, Implantable devices n.e.c., Contract Formulation Manufacturing, Tissue and Biomass.

⁵ Life sciences beyond human health: modern industrial biotechnology in the UK, Institute for Manufacturing, University of Cambridge, 2023

definition research has identified that 30% of firms in the UK life sciences sector can be classified as biotech. Of these, 51% can be classified as 'R&D services'; 34% as 'biotechnology therapeutics and diagnostics'; and 15% as 'modern industrial biotechnology'.

Modern industrial biotechnology firms are diverse. The main sub-sectors include: agriculture (22%); veterinary (18%); food (14%); nutraceuticals (12%); industrial processes (8%); environmental (8%); cosmetics (7%); and other (11%).

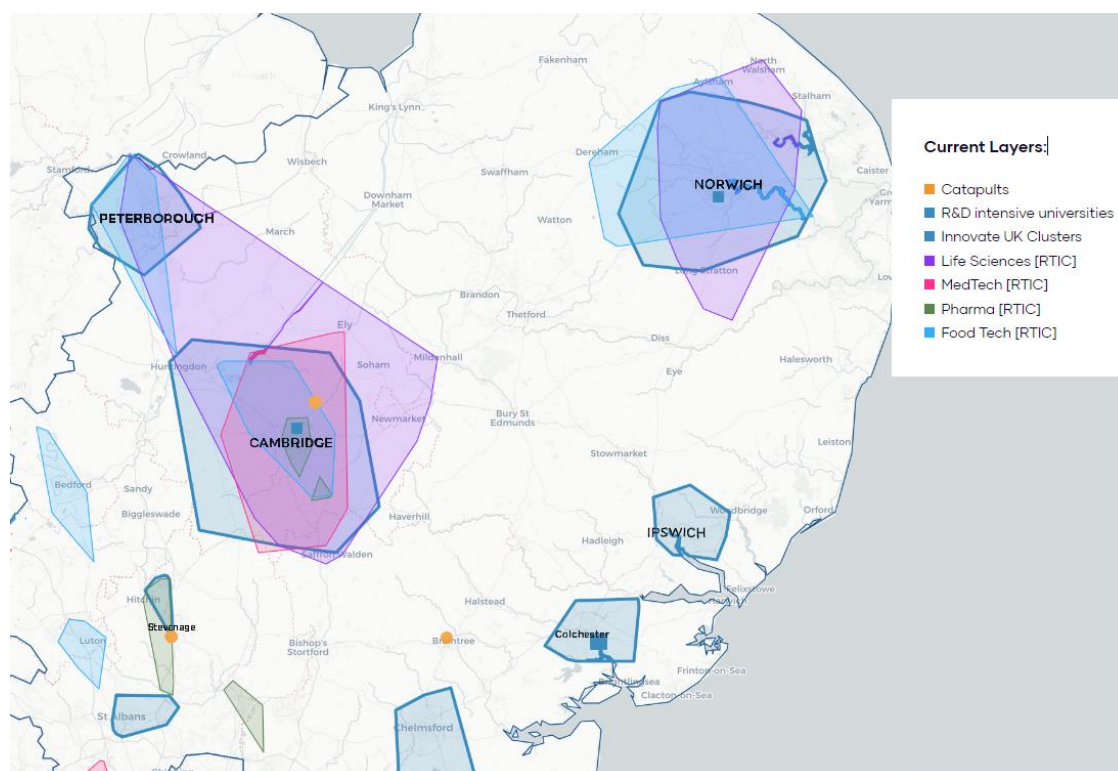
Data City, working in collaboration with the Department for Science, Innovation & Technology, Innovate UK and the Government Office for Science, are developing 'Real-Time Industrial Classifications' (RTIC).⁶ The approach is helping to better understand the composition of science and technology sectors. However, this method of classification is evolving and at present data categories do not easily align with 'human' and 'non-human' life sciences. Further refinement of this approach will provide more accurate data for scoping and analysing the sector.

⁶ <https://www.innovationclusters.dsit.gov.uk/>

3 REGIONAL CLUSTERS

The Life Science sector is important to the whole of the region with a presence in many local authority districts across the East of England. However, there is clear evidence of a clustering effect in and around the science park locations in Cambridge/South Cambridge, Norwich and Stevenage.

Figure 6: Map of Life Science Cluster in the East of England



Source: Department for Science, Innovation and Technology⁷

3.1 A Cambridge Perspective by Prashant Shah

3.1.1 The Cambridge Ecosystem - Looking in the Rear View Mirror

Cambridge is a global per capita leader in publishing research and patents and is one of the fastest growing innovation clusters covering life-science, tech/AI and due to its deep sciences foundations will also become a leader in seeding green research/technologies. The government recognises its potential as one of the economic engines for the UK and has designated it as an innovation quarter under the leadership of Michael Gove. The legacy of Cambridge has been one that has been inward looking in terms of its governance and outward looking in terms of its global impact. However, the levelling up agenda, and the thesis of the Eastern Powerhouse, has drawn attention to the serious development deficit in the city's rear-view mirror and in its own backyard across the Eastern Region.

⁷ <https://www.innovationclusters.dsit.gov.uk/>

3.1.2 The Opportunity for the East - 'Proximity not Density'

The success of an innovation led ecosystem relies on the density of ideas, talent, infrastructure, connectivity and capital embedded within a culture of entrepreneurship. It is acknowledged Cambridge is a leader in originating research, its Achilles-heel is that the commercialisation, manufacturing and scaling up of its ideas often happens abroad. Whilst the density of the life science research ecosystem is essential for the origination of research is well suited to Cambridge, spiralling costs and space limitations make it unsuitable for downstream development, clinical research, processing and advanced manufacturing including emerging fields such as engineering biology, biologics and robotics.

Cambridge organises itself as a self-contained island within the East and is very limited in terms of its dependency on the resources of the Eastern Region. A change in scope from originating research in Cambridge to the creation of innovation led development and manufacturing, based on proximity to Cambridge, has the potential to re-imagine the role of the East as an integral element in the continued success of Cambridge and the UK Life Science sector. A more integrated approach increases the chance of retaining local control and ownership of job growth and makes the region less prone to quick-fire acquisition by predatory foreign investors. It would in essence ensure the downstream research is more 'sticky' to Cambridge, the East and the UK.

3.1.3 Regional Political Integration

There is an emerging life sciences strategy at the localised level of Cambridge with super-charged levels of human connectivity. The UK government has a framework, strategy, and budget; and ministers and civil servants are building a life science strategy for the UK. Yet, despite having one of the leading life sciences clusters in Europe, Cambridge has no regional framework for the East. It is therefore a missed opportunity. There are welcome conversations about restructuring the political governance of the eastern region, including a regional mayor, that will represent and act as a conduit for regional industrial strategy. However, these would take years to come to fruition, if at all. Out of this void an opportunity has emerged, through existing and evolving bodies such as the Eastern Powerhouse, to get ahead by connecting the major clusters around Cambridge, Norwich and Stevenage.

3.1.4 Fostering Regional Connectivity & Collaboration

Alongside the work of the Eastern Powerhouse, the APPG brings together MPs from all parties to address issues within the region while the Combined Authority is exploring synergies across Cambridgeshire and Peterborough. The UKSPA (UK Science Park Association) already has quarterly regional meetings. A regional CBI forum is also established. There will be a myriad of other national bodies covering life sciences that can be encouraged to create decentralised structures such as with the BIA, UKRI, Catapult to foster greater connectivity. This could be replicated across various academic, and local/district councils. Community interest Companies such as Form the Future are expanding careers development for young people skills across the region having successfully honed their model in Cambridge over a number of years. The Addenbrookes hospital is a leader in clinical trials

and has a regional clinical network approach. There may be additional scope for a regionally integrated approach to fast tracking medicines into the clinic and launching medicines originated in the region.

Case studies:

Cambridge Medical Robotics was founded in Cambridge in 2014 and designs and manufactures world leading surgical robots. It has its headquarters, research and design in Cambridge and has located advanced manufacturing in Ely. It has raised USD 850m and is valued at over USD 3.5 billion. It is an example of research and downstream manufacturing located within the region rather than typically in Asia where the transfer of ideas from the lab and manufacturing are essential to its competitive advantage.

Astra Zeneca has recently located its global HQ and research in the Cambridge region and has manufacturing around the world. There is an opportunity for the eastern region to now engage with the biopharma giant and other such companies to build nearby downstream commercial and manufacturing capability. The research hub for many USA companies is now located in the Cambridge region and whilst Cambridge is well known for research the eastern region there is no 'pitch' to these companies as to how they can expand their downstream footprint across the region. There is an opportunity to build a co-ordinated narrative, and marketing strategy to welcome inward investment to the region where these companies already have a presence, and we have warm leads we can harvest for regional development.

3.1.5 Life Science & Agritech

Prior to being a leader in world biotech, Cambridge was a leader in agritech and agritech manufacturing. In essence it preceded and was a precursor to the biotech wave of the 90's. Advances in genomics, RNA, biologics and requirements for a myriad of technical skills and infrastructure have led to a crossover in research, experience, talent and infrastructure. Research in terms of antibody resistance is not a huge leap away from the resistance of weeds to herbicides, also taking place in the region, presenting exciting opportunities for convergence and crossover research and downstream services and manufacturing. Conversations with regional CEO's have noted that although the science of plants and humans are different and behave differently under lab or clinical conditions these boards seek managers with advanced experience in each other's sectors. It has the ingredients for a cohesive and diversified narrative across the region.

3.1.6 Marketing & Inward Investment

There are various regions of the UK that are represented at international life science conferences, exhibitions, seminars highlighting the benefits of inward investment into their region. Across the world, including in India, there are highly orchestrated efforts at regional development such as Vibrant Gujarat. No such representation or narrative presently exists

for the East. There is an opportunity to fill this void, to tell the story of the East to a wider audience in the region, in the UK, and across the world.

3.1.7 Skills & Talent

Cambridge has a talent and people shortage required to feed its economic growth. However, that talent often comes from London, and other areas of the UK, as well as overseas, but rarely from the local region. A more in depth understanding of the required talent pipeline and the alignment of the regional universities and technical colleges is needed. This would create opportunities for the people in our region and bring wider ownership and awareness of life sciences for which there is presently limited understanding of the work, its impact or economic value. An opportunity exists for a co-ordinated regional talent development blueprint around life sciences to feed regional economic growth. Allied to improved rail and road connectivity this would reduce pressure on the numbers of new houses needed in the immediate proximity of Cambridge.

3.1.8 Next Steps for Cambridge

There is an opportunity to explore the scientific, technology and industrial development of the eastern region of the UK. Cambridge is in a global race and its position is by no means secure. It will continue to need pro-active policies, strategy and investment to stay at the forefront of its specialisms in life science research and AI. So, although it is a golden goose we certainly can't take it all for granted.

Having said that, economic development across the region is highly asymmetric and as well as analysing the ingredients of what has helped Cambridge thrive, we need to explore a strategy for the related and complementary industrial development of the eastern region as a whole. Examples of 'spillover' from Cambridge include downstream drugs manufacturing, re-applying expertise in genomics to the agri-sector, or deep knowledge in biological sciences to the green economy. Cambridge has often looked towards other innovation ecosystems such as London, Oxford and even Boston, but has not looked back across the region and what it can and should do for its neighbours. This needs to change if we are to offer inclusive growth and career opportunities for the people of the region and a healthy evolution of the Cambridge/East ecosystem.

3.2 A Norwich Perspective by Ros Bird

The East of England has all the ingredients necessary to increase its contribution to UK plc over the next five to ten years if it is managed and promoted correctly.

3.2.1 The Key Components

The east has a full range of 'life science' expertise, from traditional drug discovery in Cambridge to non-traditional drug discovery and 'modern industrial biotechnology' (agribiotech, food biotech and industrial biotechnology) in Norwich. These are nurtured in and by the successful, publicly funded, universities, teaching hospitals and research institutes, and spawn a rich diversity of spin-out companies and others that benefit from being in proximity to the state-of-the-art science that is present there.

The research acumen is matched and maximised through entrepreneurial talent supported by high-tech cluster organisations, accelerator programmes, science parks, innovation centres and incubators, specialist professional service advisors, venture funds and business angel activity along with government funded Innovate UK programmes.

3.2.2 Building the Cluster through Connectivity

Human health and performance have had the clearest pipeline from research to commercialisation. The science is advanced, and the market is generally accepting of innovations. However, according to McKinsey more than half of the direct impact of life science over the next ten to 20 years is likely to be outside health, primarily in agriculture and consumer products.⁸

The current innovation wave has been propelled by a confluence of breakthroughs in biological science, together with advances in computing, data analytics, machine learning, artificial intelligence (AI), and biological engineering that are enabling and accelerating the change. It is all of this – more than the traditional drug technology/discovery – that is driving growth in modern industrial biotechnology, including agriculture, aquaculture and food. This can include research in Tropic Biosciences (by gene editing plants to survive crop disease) and food biotech (by improving the nutritional properties of grains).

If life sciences in Cambridge are focused on the cure for disease (the drugs that people need in hospital) then life science in Norwich is focussed on prevention (nutrition relating to good health that keeps people out of hospital, and healthy ageing).

⁸ McKinsey, The Bio Revolution: Innovations transforming economies, societies, and our lives, 2020

Case study: The Quadram Institute

The Quadram Institute (food biotech) is at the forefront of the interface between food, gut biology and health. A good example is the research at Quadram Institute looking at the impact of starch. Starch is hard to break down so microbes in our gut help with this process, however, some highly processed foods contain starch that is much easier to break down. This means that when microbes break down processed starch they do it rapidly, and blood sugar levels spike. Continued spiking of blood sugar over long periods of time is what leads to type 2 diabetes, a huge health problem affecting millions of people in the UK.

Collaborative work between Imperial College London, the John Innes Centre, the University of Glasgow, and the Quadram Institute has taken this research into type 2 diabetes a step further. The researchers identified that a naturally occurring wrinkly type of pea could prevent sugar spikes that lead to the disease. These wrinkly peas have different compositions of starch, that make the starch more resistant to digestion. This means the time it takes to digest is longer, so all the sugars do not enter the bloodstream all in one quick go, preventing a 'spike'. This is just a sample of the food innovation and safety research taking place to ensure the continued improvement of nutrition and food supply.

Replicating the success of science parks requires the assembly of key attributes – the presence of research capabilities, a skilled workforce, a technology platform and a clear offer and marketing strategy that can identify companies that might relocate. However, clear industrial strategy and regional development are needed to help nurture and grow innovation ecosystems. This includes necessary infrastructure: transport to better connect different parts of the emerging cluster and to rural communities, housing to attract talent into the region, and better career pathways that can enable local people to gain the qualifications and skills to access jobs.

3.2.3 Increasing the East of England's contribution to UK plc

In order to realise the full potential of life sciences in the East, government needs to:

- Recognise the full range of life science activity across the East of England and promote this internationally to encourage inward investment and inward location.
- Support collaboration between high-tech cluster organisations, science parks, innovation centres and incubators in the region - give them the mandate, targets and incentives to work together to promote the region and to create new collaboration opportunities.
- Set up a pilot/demonstrator project to engage with young people in schools and establish a scheme to encourage businesses in the key cluster areas to support career pathways working with universities and FE colleges that can match the science and technical needs of the cluster as well as wider support and ancillary roles to create a multiplier effect.

- Invest in transport infrastructure, including: bus routes from villages and towns to FE/HE and key job locations; new train stations and co-located business hubs with lab space facilities, electrification of train lines; and autonomous vehicles (shuttles/trams etc).

With this perspective, future opportunity to invest in key assets is required to take the life science sector, and other spin-off industries to the next level.

3.3 A Stevenage Perspective by Dr. Sally Ann Forsyth, OBE

3.3.1 The Key Element for Success

As a relative newcomer, Stevenage has quickly established itself over the last 11 years as life sciences cluster with a world-recognised research specialism in cell and gene therapy. The campus is home to GSK, Cell and Gene Therapy Catapult (CGTC) and LifeArc alongside a growing community of around 45 start-up companies located at Stevenage Bioscience Catalyst (SBC).

Uniquely located at the heart of the Golden Triangle, within easy reach of London, Cambridge and Oxford and anchored by manufacturing and global pharma, Stevenage has access to a world-class pool of talent and knowledge and a supply of relatively affordable housing in the town to support with staff retention. Around 4,000 employees are based on the campus.

It is the quality of the campus's assets, its connectivity and accessibility that is driving appetite to invest. Forge KN (UBS Management/Reef Group) is developing 1.6 million sq. ft of office, lab and GMP space creating 5,000 new jobs. The £900m life science campus will work alongside the existing ecosystem of pharma R&D, cell and gene clustering excellence and the vibrant SBC therapeutics community, while in the town centre The Assembly will provide an additional 530,000 sq. ft of GMP (office and lab), public realm and retail.

3.3.2 Innovation Pipeline and Commercialisation Focus

Its strong innovation pipeline brings together academia, start-ups, scale-ups, multi-nationals and manufacturing organisations. Wrapped around this is a supportive business environment to translate lab-based ideas into approved treatments, with access to seed and venture funding, specialist training and mentoring, flexible laboratory and office space, as well as the GMP manufacturing facilities on campus.

It is this unique co-location of R&D and manufacturing facilities that enables companies to move from start-up to scale up to the development of potentially life-saving therapeutics within a supportive environment. Since SBC's opening in 2012, occupier companies have raised £3.5bn in finance. The total private equity investment in biotechnology raised in Stevenage is now comparable with Cambridge, Oxford and London (Beauhurst, based on data sourced by Hertfordshire LEP, March 2021).

With its focus on commercialisation and development and specialist training such as its accelerator programmes, companies at SBC report that product development is on average

nine months faster and have an 87% survival rate versus the national rate of 65-70%. As a Life Science Opportunity Zone with High Potential Opportunity (HPO) status, Stevenage is already on course to deliver outstanding benefits to the life sciences sector and make further significant contributions to UK plc. As part of the Eastern Powerhouse, it will be able to attract more foreign direct and inward investment to the region, creating jobs and training opportunities.

Case study: Autolus

Autolus is founded on the cell programming technology of Dr Martin Pule and spun-out of University College London in 2014. CAR T cell therapies have proven to be effective in haematological malignancies and for use as cancer treatment. Autolus has more than doubled its presence in Hertfordshire employing both PhD graduates, manufacturing scientists and taking advantage of the apprenticeship scheme provided by the Cell and Gene Therapy Catapult. In 2016, Autolus was one of the companies to occupy the first six manufacturing modules of the Cell and Gene Therapy Catapult at the Stevenage manufacturing centre. In 2018, Autolus became an occupier of Stevenage Bioscience Catalyst to expand its GMP manufacturing activities. In 2020, Autolus was able to continue its growth in the SBC Spark building, specially built to enable grow-on space for GMP manufacturing.

In 2021, the company appointed developers to construct a 70,000 square foot commercial manufacturing facility, The Nucleus, in Stevenage, UK. Key equipment installation and validation were completed by Autolus in Q1 2023, enabling operational engineering trials to commence in Q2 2023. The facility has been designed to manufacture and test approximately 2,000 batches per year with expansion opportunities. The company is now revenue generating and has increased its employee base from 45 people in 2017 to just under 300 people in 2023.

3.3.3 Life Science Collaborations across the Region

Whilst the flow of equity deals is comparatively low compared to other years, about \$1bn of collaboration deals have been agreed in Stevenage in the last 12 months through two major collaborations between Autifony and Jazz (\$770m) in Nov 2023 and Autolus and Biontech (\$250m) in February 2024. This follows on from the Pfizer and Reviral investment (\$650m) in 2022.

The bigger picture for these deals is the wider investment in the Eastern Region. Biontech are taking 80k sq ft at Cambridge Medipark. Whilst the deal with Autolus creates a significant presence and strong links between Cambridge and Stevenage where R&D will be carried out in Cambridge, adjacent to a large teaching hospital with a strong clinical trials backdrop, and with manufacturing contracted out to Stevenage via Autolus.

Within a twenty-mile radius of Royston, there will now be three Corporate biopharmaceutical centres of R&D excellence; GSK, Astra Zeneca and Biontech.

The manufacturing potential of Stevenage with its support to commercialisation at Stevenage Bioscience Catalyst, established manufacturing capability embedded in the Cell and Gene Catapult alongside mature companies and Corporates helps consolidate Biopharma in the region.

3.3.4 Key Challenges:

- There is a growing concern that, whilst the UK produces some of the best research in the world, there is still a major challenge to translate, scale and commercialise the related innovations to deliver economic return.
- Cambridge is a global centre of research excellence but is less suited to scale up and manufacture these innovations due to the high costs for both business and employees associated with the location.
- Whilst scientific excellence is a great attractor for organisations and essential to deliver world leading innovation, the UK the scale up stage is where the majority of value is created within companies.
- The innovation pipeline does not all need to be within one place and there are a number of key locations within the region that have high levels of expertise, facilities that provide a more cost-effective environment for later stage growth including manufacture which is often an anchor to keep companies base in the UK.
- The Life Sciences are an area of global strength for the UK and the East of England is home to some of the world leading clusters in this sector, such as cell and gene technology.
- There is an opportunity to lever these individual assets by bringing them together to complete the innovation supply chain of start-up, scale-up and manufacturing to capture greater economic value for the UK.

4 SUMMARY

This paper highlights the importance of the life science sector in the East of England, with particular reference to the clusters in Cambridge, Norwich and Stevenage. The East of England has the third highest concentration of Life Science businesses in the UK (behind London and the South East) and the largest life science workforce (as a proportion of all employees). ***The central provocation is that the life science sector needs a regional strategy that can maximise the opportunities that exist in the East.***

Cambridge is clearly one of the most advanced life science clusters in the world and this is reflected in the asymmetry in strategy, funding, and governance vis-a-vis other places and regions. However, the success of the UK's life science sector, and Cambridge prominence within it, cannot be taken for granted. The sector is in a global race. Cambridge cannot stand still, and it will need pro-active policies, strategy and investment to stay at the innovation frontier. The same is true for other emerging clusters in Norwich and Stevenage. ***The relative proximity of these places and the confluence of advances in science and technologies, provides the opportunity to explore the inter-related scientific, technology and industrial development of the eastern region of the UK.***

We need to explore a strategy for the related and complementary industrial development of the eastern region as a whole. Examples of 'spillover' from Cambridge include ***downstream drugs manufacturing, re-applying expertise in genomics to the agri-sector, or deep knowledge in biological sciences to the green economy.*** Cambridge looks towards other innovation ecosystems in London and Oxford, but it should also be looking back into the region, at pioneering work being done in Norwich and Stevenage. Important clusters in Cambridge, Norwich and Stevenage can form a triangular catalyst for a Life Science Strategy creating investment and jobs for the East of England and UK PLC. This needs to happen if we are to offer inclusive growth and career opportunities for the people of the region and a healthy, sustainable evolution of the innovation ecosystem.

Local plans must identify and prioritise commercial sites to provide more and better lab space. Local transport plans need to provide better connectivity between research parks and rural towns and villages. Local skills improvement plans must prioritise education and training pathways into new industries. But we also need a regional approach to enable spatial planning that can go beyond local boundaries, expanding the reach of each cluster and thereby their physical proximity.

Collaboration must be the driving purpose. ***What are the problems that we want to solve? What does the sector need to achieve this? What can one life science cluster offer another? How do we create the interconnected ecosystem, from science parks to innovation business, from urban hubs to rural spokes?*** The sector needs a regional industrial strategy – that can pinpoint easy wins, but also chart the way for future development. It also needs a ***unified communication platform that can provide a single coherent voice for the sector,*** promoting life science activity across the East of England and internationally to encourage inward investment and inward location.



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