GATSBY IS A FOUNDATION SET UP BY DAVID SAINSBURY TO REALISE HIS CHARITABLE OBJECTIVES. WE FOCUS OUR SUPPORT ON A LIMITED NUMBER OF AREAS:

- PLANT SCIENCE RESEARCH
- NEUROSCIENCE RESEARCH
- SCIENCE AND ENGINEERING EDUCATION
- ECONOMIC DEVELOPMENT IN AFRICA
- PUBLIC POLICY RESEARCH AND ADVICE
- THE ARTS

WE ARE PROACTIVE IN DEVISING PROJECTS TO ACHIEVE OUR AIMS. WE ARE ENTHUSIASTIC ABOUT SUPPORTING INNOVATION. WE ARE ANALYTICAL AS WE BELIEVE IT IS IMPORTANT TO UNDERSTAND THE OPPORTUNITIES AND PROBLEMS WE TACKLE. WE TAKE A LONG-TERM VIEW AS WE DO NOT THINK MUCH CAN BE ACHIEVED BY SHORT, ONE-OFF PROJECTS. WE ARE ALWAYS EAGER TO FORM PARTNERSHIPS WITH ORGANISATIONS WHO SHARE OUR GOALS.
INTRODUCTION
BY LORD SAINSBURY OF TURVILLE

Settlor of the Gatsby Charitable Foundation

The COVID-19 crisis over the past two years has been unprecedented. Each of us has had to make changes on both a personal and professional level. The negative impacts on society have been deep and wide-ranging, with public services and community groups stretched to the limit. I believe that private foundations, free of restrictions and with quick decision-making, have an important role in helping to tackle these challenges. In response, Gatsby released new funding outside of its usual grant categories to help to mitigate and address the impact of the pandemic in the UK.

Gatsby made two major grants to help with rapid responses. The first was to the Trussell Trust to support running food banks nationwide. Disruptions to supply chains, the impact of COVID-19 on volunteers, and an anticipated rise in demand for their services as a result of economic hardship required a major and rapid response. The second was to the National Emergencies Trust (NET) to support their Coronavirus Appeal. The NET was set up to make certain that in these circumstances funds are directed to the areas most in need in the country.

Very little was known about the clinical implications and the fundamental biology of the coronavirus causing the pandemic. It was clear there was a great need for high-quality scientific research, but funding mechanisms are often slow in normal times. Along with many other philanthropists, I supported Fastgrants.org, an organisation that coordinated the rapid deployment of funds to provide more than 170 grants to researchers working on COVID-19. The scientific research community supported by Gatsby also responded to the challenges facing the country. The highly-skilled researchers at the Sainsbury Laboratory in Norwich volunteered in the testing effort at the Norfolk and Norwich University Hospital, as well as provided expertise for the development of rapid diagnostic tools.

The third sector performed a crucial role in the coronavirus response, but the national lockdown vastly impacted their operations and business model. New Philanthropy Capital (NPC), a think tank and consultancy for the social sector, advised the Government on its initial response to the impact of COVID-19 on the charity sector. To build on this, Gatsby has provided funding to NPC for their Efficiency and Innovation programme to support fundraising charities to be more innovative and efficient to help them survive during and after the coronavirus crisis.

Finally, I am immensely proud that all the major organisations that Gatsby supports managed to keep their operations going in reasonably good shape, and where they had relevant skills deployed them effectively to help deal with the crisis.
THE ARTS
The UK’s arts sector has been devastated by the lockdown and COVID restrictions. We therefore provided additional funds to the Chamber Orchestra of Europe. It is great that the Sainsbury Centre for Visual Arts developed an online programme of activities to maintain accessibility of their collections to the public during the lockdown.

Gatsby also made a significant contribution towards the major refurbishment project of the auditorium of the Cambridge Arts Theatre that will allow them to expand their artistic offerings and secure a truly sustainable long-term future for the Theatre.

PUBLIC POLICY
The UK manufacturing community moved with remarkable speed and agility to respond to numerous urgent challenges resulting from the spread of COVID-19. For example, there was the repurposing of their production capabilities to address healthcare needs such as personal protective equipment. It is important to capture how manufacturers responded and any lessons learnt. To this end, Gatsby has supported the Institute for Manufacturing at the University of Cambridge to produce a number of case studies on this.

In collaboration with Centre for Cities, I authored a report in early 2021 on levelling up the UK’s regional economies, made even more challenging due to COVID. The Centre has a wealth of research, covering topics including cities’ use of technology to tackle the pandemic, the impact of lockdowns on labour markets, and roles for local government and Metro Mayors.

I am delighted that Gatsby funding has enabled the creation and launch of the UK Innovation Report by Policy Links and colleagues in Cambridge. This has assembled in a single place all relevant data and indicators on innovation and industrial performance. It will be updated each year to remain a reliable source of information to assist policymakers.

ECONOMIC DEVELOPMENT IN AFRICA
In East Africa, Gatsby works to help more people benefit from economic growth by creating jobs, raising incomes and building opportunities. To achieve this, there is a focus on the transformation of priority sectors – such as aquaculture, commercial forestry and textiles – with the potential for large-scale social impact.

Working with governments, the private sector and other actors, Gatsby seeks to drive globally competitive sectors which are resilient and benefit large numbers of people. A long-term view helps ensure sectors are equipped with the capacity to dynamically adapt, seize opportunities and manage shocks in the future.

COVID-19 underscored the critical importance of resilience as pandemic-related restrictions majorly disrupted the global trading system and local markets, resulting in Africa suffering its worst recession in half a century. I’m proud of how the programmes quickly intervened to protect promising firms and share first-hand sector information with decision-makers. While I’m pleased that the sectors supported have survived the crisis and that the region could even benefit from the consequent diversification of supply chains, it reaffirms Gatsby’s long-term approach to ensure the right institutions and mechanisms are in place to help sectors thrive.

NEUROSCIENCE
My philanthropic support of scientific research has always taken an extended view, as I do not think much can be achieved by short, one-off projects. It also means the supported researchers can pursue higher-risk opportunities.

The Sainsbury Welcome Centre and the Gatsby Computational Neuroscience Unit (GCNU) are driving innovation through multidisciplinary working groups. This genuinely exciting approach is bringing together neuroscientists, engineers, data scientists and industry to design solutions for answering the most interesting questions about how the brain works.

Almost a quarter of a century ago, Gatsby set up GCNU at University College London to create a critical mass in the burgeoning field of theoretical neuroscience and machine learning. A recent quinquennial review highlighted that the Unit is one of the top centres in the world and continues to go from strength to strength. My life-time advisor and friend, Dr Roger Freedman, was responsible for shaping our programmes in plant science and neuroscience. To mark this, the Unit will award annually the Roger Freedman Prize for Outstanding Contribution to the trainee that makes the most impact on the research, culture and community of the Unit.

PLANT SCIENCE
The Sainsbury Laboratory in Cambridge is now being operated for just over a decade. A recent comprehensive five-year review noted the quality of the science and the combinations of different disciplines to tackle fundamental plant science questions. The external review panel felt this is a testament to the power of Gatsby’s long-term vision and support. The Laboratory’s implementation of that vision, funding has been renewed and I look forward to the outputs and accomplishments to come.

Gatsby’s approach of flexible core funding has helped existing grantees and their activities. Both Sainsbury Laboratories reopened in summer 2020 with reduced occupancy for social distancing. Despite this, they have remained extremely productive with new group leaders arriving. PhD students and post-doctoral researchers on fixed-term projects have had, where required, additional funding provided to minimise the impact of lockdown and delays on their scientific findings and their future careers in research.

EDUCATION
Gatsby continues to work alongside governments and partners to reform technical education, and create a high-quality education system that provides all learners with access to the skills and knowledge required for skilled occupations.

In 2020, we celebrated the launch of T-levels – new two-year technical qualifications designed to meet the needs of industry and prepare students for work, further training, or study. Over the last 18 months, we also saw the announcement of the first 31 digital Higher Technical Qualifications at levels 4 and 5 with employer and government endorsement; and the continued progress of Institutes of Technology (IoT)- innovative collaborations between Further Education colleges, universities and employers to provide learners with the skills and knowledge to take advantage of the latest technologies and processes.

Such advancements have been made all the more remarkable by the fact they have been delivered by colleagues and partners against such a challenging backdrop. I would like, as in previous years, to thank the brilliant team who run the Gatsby Charitable Foundation. They have done an excellent job in maintaining momentum over the past two years in extremely difficult circumstances, helping new and existing Gatsby grantees to work, adapt and deliver on their funded projects during the coronavirus crisis. The wise advice and help of the Gatsby Trustees are as always much appreciated.

Top: A ClearXM61R microscope at the Sainsbury Welcome Centre, built by Head of Microscopy, Dr Rob Campbell, allows researchers to work both at high resolution and high speed to image an entire mouse brain in five minutes.

Bottom: Mark-Jave Bautista, Tantawat Nandawat, Akkara Ketsawee and Vidyashree Shinakuramawar (from left to right) are recipients of David Sainsbury Scholarships for students in the Global Plant Health MSc programme in Global Plant Health led by the Sainsbury Laboratory in Norwich.

Above: Andrew Carter, Chief Executive of the Centre for Cities (top middle) chairs an online panel discussion in March 2021 on levelling up the UK’s regional economies with (clockwise from top right) Lord David Sainsbury, Elena Magrini, senior analyst at the Centre for Cities, currently on secondment to the West of England Combined Authority; Andy Street (Mayor of the West Midlands) and Dan Jarvis MP (Mayor of South Yorkshire and MP for Barnsley Central).
PLANT SCIENCE

ADVANCING KNOWLEDGE IN FUNDAMENTAL PLANT BIOLOGY, AND NURTING TALENT AMONG YOUNG SCIENTISTS

We aim to support research which builds a fundamental understanding of plant biology. To this end we provide core funding for two major laboratories. The Sainsbury Laboratory at Norwich is a research centre for the study of plant-pathogen relationships. The more recently established Sainsbury Laboratory Cambridge University is devoted to the study of plant development. These centres of excellence attract new knowledge into practical use are living together and working as part of a team.

Above: A liverwort collecting kit with clear instructions on how to identify and collect specimens, and these are being used by the group led by Dr Sebastian Schornack to study the resistance/susceptibility to pathogens and how this differs within the same species from different regions.

The Jönsson Group, ICIAB, and Robatzek previously SLCU Associate Director, was appointed as the new CEO of UK Research and Innovation (UKRI), and the national funding agency investing in science and research in the UK. The Gatsby Trustees warmly congratulate Professor Leyser on her new appointment and wish to express their appreciation and gratitude for her seven years of leadership of SLCU that fostered a creative, productive and inclusive interdisciplinary research centre.

To build on these strengths, the Trustees are very pleased that Professor Henrik Jönsson, previously SLCU Associate Director, was appointed as the new Director from the end of June 2020.

Two new David Sainsbury Career Development Fellows recently joined the Laboratory, Dr Chris Whiteside’s group will combine computational modelling with genetic and developmental analysis to investigate how plants coordinate intricate internal patterning to produce leaves that are exquisitely adapted to their environment. Drs Renske Vroomans’ group investigates the virulence function of fungal pathogens that cause some of the most devastating plant diseases such as the blast fungus. Field testing of new resistant crop varieties is underway in sub-Saharan Africa, based on this work. SLCU has also named in the 2021 Highly Cited Researchers list. This means a total of 6 TSL members have been named in the list of the top 1% most highly cited scientists during the last four years (Professors Jones, Kamoun, Zipfel and Robatzek). With over 12,475 citations last year, TSL remains one of the most highly cited research institutions in the world in any discipline.

A new senior group leader, Professor Wenbo Ma, arrived in late 2020. Her group investigates the virulence function and evolution of pathogen effectors, so as to increase understanding of the mechanisms underlying plant immunity and plant pathology. She brings expertise in cutting-edge molecular technologies including genome editing and RNA interference, as well as the Ruth Allen Award of the American Phytopathological Society for outstanding contributions in molecular plant pathology.

Recent advances at TSL include the discovery that plant immunity requires two-step detection of invading microbes, and this leads to a robust immune response producing protection from disease. These fundamental discoveries provide key information about how resistant crop varieties could be engineered in future. TSL scientists are also studying the developmental biology of fungal pathogens that cause some of the most devastating plant diseases such as the blast fungus. Field testing of new resistant crop varieties is underway in sub-Saharan Africa, based on this work. TSL has also named in the 2021 Highly Cited Researchers list. This means a total of 6 TSL members have been named in the list of the top 1% most highly cited scientists during the last four years (Professors Jones, Kamoun, Zipfel and Robatzek). With over 12,475 citations last year, TSL remains one of the most highly cited research institutions in the world in any discipline.

TSL ran a very successful Plant Taskmaster outreach programme for students who were home-schooling during the COVID-19 pandemic, involving fun plant science-related challenges and live chats with a Scientist online broadcasts. As part of the Cambridge Festival, SLCU launched a citizen science project called The Great British Liverwort Hunt. Over 50 participants from across the UK were sent a liverwort collecting kit with clear instructions on how to identify and collect specimens, and these are being used by the group led by Dr Sebastian Schornack to study the resistance/susceptibility to pathogens and how this differs within the same species from different regions.

The international review panel felt the quality of the science was outstanding with a very strong and effective balance of experimental work with theory and modelling, with many collaborations between groups of different expertise. The established culture of openness and inter-group collaboration remains highly admirable. Following this very successful review, we renewed core funding for a further five-year research cycle from January 2022.
THE GATSBY PLANT SCIENCE NETWORK
Gatsby further supports UK excellence in plant science through a suite of activities overseen by the Gatsby Plant Science Advisors. The network consists of Gatsby-funded undergraduates, postgraduates, postdocs and alumni, with mentors chosen from UK universities with teaching and research interests in plant science. Two Sainsbury PhD students started their four-year research training in autumn 2020. Giovanni Giunari at Glasgow will investigate a novel mechanism of UV-B photoreceptor signalling, while Maude Grenier at Edinburgh will research autumn plant phenology responses to warming Arctic. Two more students started in late 2021: Katie Long will look at carpel development to engineer novel variation in plant science activities remotely over their four-year research training in autumn 2020. Two Sainsbury PhD students started in their four-year research training in autumn 2020. Giovanni Giunari at Glasgow will investigate a novel mechanism of UV-B photoreceptor signalling, while Maude Grenier at Edinburgh will research autumn plant phenology responses to warming Arctic. Two more students started in late 2021: Katie Long will look at carpel development to engineer novel variation in plant science.

EDUCATION PROGRAMME (GPSEP)
GPSEP aims to improve the teaching and learning of plant science at all ages, and inspiring the next generation through plant science activities remotely over their four-year research training in autumn 2020. Two Sainsbury PhD students started in their four-year research training in autumn 2020. Giovanni Giunari at Glasgow will investigate a novel mechanism of UV-B photoreceptor signalling, while Maude Grenier at Edinburgh will research autumn plant phenology responses to warming Arctic. Two more students started in late 2021: Katie Long will look at carpel development to engineer novel variation in plant science.

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2BLADES CONTINUED TO ENGAGE A GLOBAL CONSORTIUM TO DEVELOP DURABLE RESISTANCE TO WHEAT STEM RUST, A CATASTROPHIC DISEASE OF WHEAT AND SIGNIFICANT THREAT TO FOOD SECURITY
2Blades continued to engage with a global consortium to develop durable resistance to wheat stem rust, a catastrophic disease of wheat and significant threat to food security. This has focused on combining multiple resistance genes delivered as cassettes into wheat, and the resulting wheat lines were tested in field trials at the University of Minnesota. The results published in Nature Biotechnology demonstrated that inserting a stack of five resistance genes into a single genome location of common wheat led to exceptional resistance to stem rust, unmatched and unattainable by conventional breeding. 2Blades was awarded a grant from the Agriculture and Food Research Initiative of the US Department of Agriculture to isolate resistance genes from wild emmer wheat in collaboration with scientists at Kansas State University, the University of Minnesota and the John Innes Centre. The genes identified will further enhance 2Blades’ world-leading resource of rust resistance genes. Cassettes of these genes will move towards application in partnership with CIMMYT, the global wheat breeding organisation. 2Blades has continued to support the work of Dr Marc Ghislain and colleagues at CIP (International Potato Centre) in Kenya and in collaboration with Uganda’s National Agricultural Research Organisation and other organisations in East Africa. Field trials and data collection for deregulation of a popular regional potato variety engineered with a resistance gene stack against late blight are at an advanced stage. In collaboration with the University of Minnesota, an economic assessment of the top seven wheat diseases is in progress. A related report has been initiated with the International Food Policy Research Institute to provide data on the nutritional and health impacts of plant disease, using wheat rust as an example. These reports will be shared with policymakers, research organisations and funders to demonstrate the strong case for investing in solutions for crop disease to help achieve food security.

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One of the most exciting challenges of IN EXPERIMENTAL AND THEORETICAL NEUROSCIENCE

One of the most exciting challenges of the 21st century is to understand how the brain performs the computations that directly underpin our behaviour. Our strategy harnesses the efforts of a dynamic and multi-disciplinary group of scientists with a common interest in the workings of the brain. To this end, we are partnering with Wellcome and University College London (UCL) on the Sainsbury Wellcome Centre – a scientific research centre using state-of-the-art techniques to investigate how brain circuits process information to create representations and guide behaviour.

Gatsby has also developed several innovative and collaborative programmes around the world. In addition, we support cutting-edge research meetings, and invest in training, outreach and sector development programmes.

Opposite page: The Margrie group at SWC investigates the multisensory integration in circuits in the cerebral cortex. This light microscopy image taken by senior research fellow, Dr Mateo Velez-Fort, shows the brain cells (red) that carry head motion information in the primary visual processing area of the brain receiving inputs (green) from the vestibular balance system.

SAINSBURY WELLCOME CENTRE FOR NEURAL CIRCUITS AND BEHAVIOUR (SWC)

SAINSBURY WELLCOME CENTRE FOR NEURAL CIRCUITS AND BEHAVIOUR (SWC) is a research centre at UCL which will house about 200 scientists and support staff investigating how brain circuit function underlies behaviours.

SWC has initiated its first Strategic Project: led by a multi-disciplinary working group designed to solve challenges which cannot be tackled by individual labs. It brings together group leaders from SWC and the Gatsby Computational Neuroscience Unit (GCNU), external collaborators, data scientists, engineers and industrial partners. This project will develop a technical platform for studying naturalistic foraging behaviour in rodents with long-term neural recordings. Sub-groups are working on the hardware, software and data analysis requirements of the project.

A new group leader, Dr Ann Duan, joined the SWC faculty in summer 2021. Dr Duan’s lab at SWC will combine theory-driven experimental paradigms with modern experimental and analytical tools to conduct large-scale, cellular-resolution investigations of neural circuit mechanisms for flexible decision-making. In particular, she aims to understand how decision-making is modulated by internal and environmental variables, such as risk preference and competitive/cooperative social interaction.

Building upon his fundamental scientific research at SWC, group leader Dr Andy Murray, has started a new business venture, Sania Therapeutics. This will develop adeno-associated virus serotypes to transmit genes to spinal neurons, with implications for treatment of neuromuscular conditions. Gatsby is committed to enhancing research and promoting a positive research culture that champions inclusivity and equity of opportunity. To explore the impact of childcare or other dependant-related costs on Equity, Diversity and Inclusion (EDI), we recently awarded grants to SWC and GCNU to deliver targeted and progressive positive action to promote increased diversity among early-career researchers (PhD students and post-docs) and support the transition to independent faculty member. The Early Career Carer Support Fund will allow SWC and GCNU to gather data to understand whether a dependant supplement helps to promote EDI.

GATSBY COMPUTATIONAL NEUROSCIENCE UNIT (GCNU)

Gatsby founded the GCNU at UCL over two decades ago to bring together a critical mass of theoreticians focussing on computational neuroscience, and the role that mathematics plays in helping us understand the brain. A group of students from the Unit initiated a week-long series of conversations and critical presentations examining past and current issues around race in science.

In March 2021, a joint GCNU-SWC postdoctoral fellow, Dr Grace Lindsay, published her first book entitled Models of the Mind: How physics, engineering and mathematics have shaped our understanding of the brain. It provides a comprehensive introduction into the field of computational neuroscience, and the role that mathematics plays in helping us understand the brain.

A major review of the Unit took place in September 2021, led by an independent panel of international experts from computer science, machine learning, and related fields like computational neuroscience, mathematics, and physics. The panel felt the Unit remains a world leader and its influence in the field belies its relatively small size, felt through its cutting-edge research, the strong training of its PhD students and post-docs, and the impact of its alumni in both academia and industry.

Following this very successful review, we renewed core funding for a further research cycle from November 2021.

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THEORETICAL NEUROSCIENCE AT COLUMBIA AND HEBREW UNIVERSITIES

Our support in the area of theoretical neuroscience and machine learning also includes two other world-class centres as part of an ongoing partnership with GCNU. These are the Centre for Theoretical Neuroscience at Columbia University in the USA, and the Gatsby Programme in Theoretical Neuroscience at the Safra Centre for Brain Sciences (ELSC) at the Hebrew University in Israel. The downtime for experimentalists caused by closing of laboratory spaces during the first COVID lockdown meant the centres were able to form new and more meaningful collaborations, because experimentalists working from home focused on analysing existing data and planning new experiments.

A virtual annual meeting of the tricentre group of GCNU, ELSC and Columbia took place in June 2021. The group looks forward to meeting again in mid-2022 to continue conversations and explore new collaborations. They plan to provide an additional opportunity for early-career researchers and is particularly meaningful because, thanks to its online nature, it enables participation for community members who traditionally do not have the financial capacity or institutional support to attend in-person summer schools.

CAJAL ADVANCED NEUROSCIENCE TRAINING PROGRAMME

We are partnering with Federation of European Neuroscience Societies, International Brain Research Organisation, Champalimaud Foundation and Bordeaux Neurocampus to support the continued development of the CAJAL programme, a dedicated neuroscience advanced training facility. The course offerings (totalling 27 courses and 500 students over the past four years) have been refined as well as expanded. The established calibre of the programme and fully international faculty have highlighted to the wider neuroscience community the availability of excellent Europe-based training courses, which are beginning to rival the highly respected equivalent courses in the USA.

In the last year, some hands-on courses had to be cancelled due to COVID. The CAJAL Executive worked with SWC and GCNU to incubate kit-based training that could be posted out to participants, with online instructions and group tutorials. This course, entitled The Last Box, Box, provided a foundation for experimentalists beginning a PhD or switching discipline. The very successful pilot course introduced neuroscience concepts, data acquisition and analysis, and machine learning by guiding the students through the hands-on construction of a robot.

We recently renewed support for a further six-year period to help CAJAL consolidate strengths and develop further directions that will expand the reach and sustainability of the courses to ensure their future long-term impact on advanced training in neuroscience.

IT IS ESSENTIAL TO INCLUDE THE WHOLE NEUROSCIENCE LANDSCAPE TO ACHIEVE CULTURE CHANGE

3,300 Students on a fully online three-week global summer school for computational neuroscience.

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STANFORD OPTOGENETICS: MOONSHOT FOR AUTISM (SOMA)

This project group at Stanford University under the direction of Professor Karl Deisseroth aims to elucidate the mechanisms of autism brain dynamics and to resolve relationships among multiple brain-wide projections and cell populations for defined behaviours. The group has already perfected and applied a range of molecular tools to target particular cell types based on anatomy or activity patterns during natural behaviour. This has enabled cutting-edge recordings simultaneously across many brain areas to look at the complexity of social behaviour. SOMA found that brain-wide interactions defining self, other and their inter-relationships are key for social behaviour. They found a desynchronisation pattern that may explain the mysterious and clinically important state of dissociation.

This work suggests a fundamental mechanism for the assembly and disassembly of the self and its boundaries, with key implications for understanding the basic principles enabling social interaction.

Technologically, they have developed an alignment of anatomy and molecular datastreams to allow insight into social processes in health and disease at the single-cell level. This new device combines the necessary fluidics, mechanics and control systems, all integrated with optical microscopes to permit the team to find cell-specific targets for therapeutic social opportunities.

This work will ultimately help the Deisseroth group to create novel and effective therapies which will have an impact on the treatment landscape for Autism Spectrum Disorder.

BRITISH NEUROSCIENCE ASSOCIATION (BNA)

We are providing support to the BNA to implement a new strategy aiming to reposition itself as a powerful force supporting UK neuroscience. In 2020, BNA partnered with SWC to launch its Building Bridges Between Industry and Academia (BBB) initiative that aims to foster collaboration between neuroscientists in industry and academia for information exchange through workshops and networking. There was a scene-setting webinar with Sir Mene Pangalos, Executive Vice-President R&D at AstraZeneca in autumn 2020. At the fully online 2021 BNA Festival of Neuroscience conference, a BBB workshop entitled How to improve translation between industry and academia in neuroscience was chaired by Professor Tom Oris, SWC Chief Scientific Officer, who previously led early drug development for neurodevelopmental disorders and psychiatry at Roche. He was joined by four leaders and innovators in industry-academia partnerships: Sir Mene Pangalos, AstraZeneca; Dr Eva Loth, Kings College London; Dr Justin Bryans, LifeArc; and Dr John Huxter, Transpharma.

Through BBB, BNA continues to increase industry members as well as to involve the commercial sector in the Association’s key campaign around research reproducibility and replicability. Credibility in Neuroscience, because to achieve culture change it is essential to include the whole neuroscience landscape. BNA’s ongoing aim is to increase and broaden membership with a wider range of activities to ensure it is truly representative and relevant to everyone in neuroscience, including those in the private sector, the clinic and in wider society.

IT IS ESSENTIAL TO INCLUDE THE WHOLE NEUROSCIENCE LANDSCAPE TO ACHIEVE CULTURE CHANGE

Neuroanatomical and functional principles that may underlie autism spectrum traits were highlighted in the recent MOONSHOT FOR AUTISM (SOMA) project led by Stanford University’s Karl Deisseroth.

Deisseroth aims to elucidate the mechanisms of autism brain dynamics and to resolve relationships among multiple brain-wide projections and cell populations for defined behaviours. This has enabled cutting-edge recordings simultaneously across many brain areas to look at the complexity of social behaviour. SOMA found that brain-wide interactions defining self, other and their inter-relationships are key for social behaviour. They found a desynchronisation pattern that may explain the mysterious and clinically important state of dissociation. This work suggests a fundamental mechanism for the assembly and disassembly of the self and its boundaries, with key implications for understanding the basic principles enabling social interaction. Technologically, they have developed an alignment of anatomy and molecular datastreams to allow insight into social processes in health and disease at the single-cell level. This new device combines the necessary fluidics, mechanics and control systems, all integrated with optical microscopes to permit the team to find cell-specific targets for therapeutic social opportunities.

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EDUCATION

Gatsby’s work in education continues to focus predominantly on securing systemic change by influencing national education policy. We take an analytical and evidence-based approach and seek pragmatic advice to policymakers that ensures that students in England also have this valuable opportunity to develop and practise their technical and wider employability skills in a workplace.

We are also working with several partners to publish materials that provide employers with a clear picture of the education landscape, and the opportunities that reformed technical education offers them.

We also continue to promote greater recognition of the importance of technicians to modern society, by showcasing the diverse range of technician jobs available and the education and training pathways that lead to them.

Above: Baldeep Bramrah started his career at Reaction Engines as a Technician Apprentice. The Technicians Make it Happen (TMiH) campaign illustrates the opportunities technician careers can provide with a series of case studies from a range of industries.

Credit: Leonora Saunders

STRENGTHENING TECHNICAL EDUCATION AND SKILLS IN THE UK BY DEVELOPING AND ENABLING INNOVATIVE PROGRAMMES AND INFORMING NATIONAL POLICY

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Credit: Leonora Saunders

TECHNICAL EDUCATION REFORM

Technical education creates strong opportunities for young people entering the world of work; for adults seeking to upskill and reskill throughout their careers; and for employers developing their workforce. Gatsby continues to work alongside the Department for Education (DfE) and key partners as we move towards a coherent system of technical education in England that offers clear, well-understood pathways to skilled employment or further study.

Achieving this goal requires collaboration between national and local government, Further Education (FE) institutions and employers, and we have worked with local decision-makers in several places to support and encourage coherent planning of technical education. At the national level, the Government must oversee a framework for qualifications that enable people to develop the knowledge and skills which will see them flourish in future employment.

Apprenticeships and new qualifications – both T-levels and Higher Technical Qualifications – are now underpinned by occupational standards that are written and maintained by employers. Gatsby continues to carry out research to understand how the quality of the English apprenticeship system can be improved.

In 2021, we published research on apprenticeships which highlighted the role employers play in ensuring high-quality training happens in the workplace as well as off the job.

T-levels are new, two-year technical qualifications shaped by employers to meet industry needs, that include appropriate English, maths, and digital content. A T-level also includes an extended industry placement, a common element of study programmes for young people in countries with strong technical education systems. The introduction of industry placements within T-levels ensures that students in England also have this valuable opportunity to develop and practise their technical and wider employability skills in a workplace.

We are working with partners, including the Association of Colleges, Local Government Association, and NHS Trusts to support the establishment and sharing of good practice for placements.

We also continue to promote greater recognition of the importance of technicians to modern society, by showcasing the diverse range of technician jobs available and the education and training pathways that lead to them.

Credit: Leonora Saunders

HIGHER TECHNICAL EDUCATION REFORM

There is a significant demand for high-level skills in the workforce, particularly among adults needing to upskill or change careers. Unlike many other countries, the education system in England is largely focused on meeting this demand through three-year Bachelor’s degrees. Working closely with Gatsby, the DfE has been developing proposals for a high-quality system of higher technical education courses and qualifications at levels 4 and 5 which are focused on employer needs in technical occupations. In July 2020, the DfE announced a series of reforms aimed at raising the profile and uptake of Higher Technical Qualifications (HTQs), primarily through an opt-in approval process being managed by the Institute for Apprenticeships and Technical Education (IATE). In June 2021, IATE announced the first 31 Level 4 and 5 digital courses that had been approved by their employer panels and earned the right to use a Government-endorsed quality mark.

Construction, Health and Science qualifications were submitted for HTQ approval over summer 2021, and Engineering and Manufacturing qualifications (among others) will follow in 2022.

Among the first trailblazers offering these HTQs will be Institutes of Technology (IoTs) – collaborations between FE colleges, universities and employers, specialising in providing higher technical education in STEM in England.

Announced in 2019, the first wave of twelve IoTs have been backed by £170 million of Government investment to fund industry-standard facilities and equipment. Low-carbon technology and digital skills are at the forefront for many, with the North East IoT opening a new Engineering, Advanced Manufacturing and Motor Vehicle suite with state-of-the-art electric car training rigs and the West of England IoT launching a £3 million Advanced Digital Academy equipped with a cyber attack and defence room. A second wave of IoTs will soon extend the reach and impact of these specialist collaborations, offering progression routes for young people with T-levels, providing flexible training for adults in work, and supporting local employers to take advantage of innovative technologies and processes.

Having first presented the idea of IoTs to the Government in 2014, we are pleased they are opening to great acclaim across the country and are committed to supporting their success. Since spring 2020, Gatsby has provided support to the IoT Network, establishing an infrastructure for sharing good practice and catalysing partnerships, and providing a conduit for stakeholder engagement.

In August 2021 we launched a website (www.institutesoftechnology.org.uk) aimed at showcasing the IoTs as a group of world-class institutions at the forefront of higher technical education and training; and enabling employers and other major stakeholders to easily find the IoT they might want to work with. Over the coming year a new communications campaign will run across the whole Network, with each IoT contributing their unique stories as part of a shared drive towards greater engagement with employers and young people. The next wave of IoTs will be inducted into the Network, supporting what will become a significant number of FE colleges, universities and employers in England committed to STEM higher technical education.
**STEM SKILLS IN THE WORKPLACE**
We have continued to work with BCS (the Chartered Institute for IT), and the Science Council to support the professional recognition of technicians and give their occupations the status they deserve.

One area of our work particularly impacted by the pandemic was the Technicians Make it Happen (TMiH) campaign. Usually, over the course of a year we showcase the work and value of technicians at events across the country, reaching an audience of 200,000+ young people. However, for 2020 and 2021, the campaign’s activity has been almost exclusively on its digital and social media platforms.

From the ventilator challenge to the race for a vaccine, technicians have been front and centre of national and global efforts. We endeavoured to reflect this in Technicians Make it Happen’s content, an initiative that seeks to create a culture where technical careers in universities and research institutions are better recognised, supported, and developed.

The impact of the Commitment – from the groundwork it laid in helping to secure almost £5 million of funding (including a £3 million Research England grant) to research and develop training and support for technical pathways within research and HE, to the publication of reports such as assessing the impact of the pandemic on technical education systems can respond to innovation. We subsequently supported the HVMC to carry out foresighting work in advanced manufacturing, which led to the DfE making a £2 million grant to the HVMC to enable it to work with IoTs to create courses to support the upskilling of the manufacturing workforce. In 2021, the foresighting work was highlighted in the Government’s Innovation Strategy with a recommendation that Gatsby should expand foresighting beyond advanced manufacturing.

During this time, we also commissioned research looking at the role that FE colleges can play in the innovation ecosystem. This research has been well-received, with Innovate UK looking to build on it to understand how colleges could support the diffusion and adoption of innovation. The DfE-funded College Business Centres also recognise that FE has a part to play in supporting innovation.

With Gatsby support, in 2020 SkillsBuilder published the Universal Framework for Essential Skills. The framework was created with support from Chartered Institute of Personnel and Development; Business in the Community; the Confederation of British Industry; the Careers & Enterprise Company and others. It will hopefully enable much smoother transitions from education to employment by promoting a common understanding of the essential skills that employers value.

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GOOD CAREER GUIDANCE
Career guidance has never been more important for young people as they decide their next steps following the COVID-19 pandemic. In response, Gatsby invested in research with headteachers and used the findings to inform career guidance. We worked with the Careers & Enterprise Company to develop guidance for schools and colleges on how to continue to deliver career guidance when learners are at home.

In July 2021, the Government renewed its commitment to the Gatsby Benchmarks, continuing to embed the framework at the heart of the new statutory guidance for schools and colleges, and Ofsted strengthening their emphasis on career guidance in their inspection framework. Despite the challenges of the pandemic, schools and colleges continued to make good progress towards the Benchmarks with over 270 now achieving all eight Benchmarks, more than double the number in 2019. Published evidence now tells us that in institutions meeting all the Benchmarks, students are 13% more likely to be in education, employment or training when they leave school.

Gatsby has continued its pioneering research in the careers field, including: the views of schools, colleges, and young people on the information they receive about academic and technical qualifications; the role of labour market information in career decision-making; and career guidance support for adults.

Our work to support parents and careers to help their children make informed decisions about their future has gone from strength to strength. The Talking Futures programme has been successfully piloted and a national communications campaign, along with a partnership with The Careers & Enterprise Company to work directly with schools and colleges, will be growing in 2022 and beyond.

**CAREER GUIDANCE HAS NEVER BEEN MORE IMPORTANT FOR YOUNG PEOPLE AS THEY DECIDE THEIR NEXT STEPS FOLLOWING THE COVID-19 PANDEMIC**

**SCIENCE AND MATHS IN SCHOOLS**
Over the last twenty years, Gatsby has worked with Government and other partners to improve the quality and quantity of science specialist teachers in secondary schools, recognising that well-qualified and motivated specialists are key to providing a high-quality science and maths education. We remain interested in the role of salary and early-career retention payments in teacher recruitment and retention. In early 2021, we published a report with Education Policy Institute (EPI) looking at local pay reform and research examining different models for setting teacher pay which was of particular relevance following the COVID-19 pandemic.

For the last three years, we have worked with SchoolDash and Teacher Tapp to monitor recruiting activity in English secondary schools. This work enabled us to make a series of recommendations to Government following the first lockdown in 2020, to ensure that teachers were not lost from the profession.

**BUSINESS EDUCATION FOR ENGINEERS**
Since 1987, the Sainsbury Management Fellowships (SMF) scheme has provided bursaries to enable exceptional, early-career engineers to study for an MBA at a world-class business school. Ten bursaries of £50,000 are awarded each year and a vibrant alumni association organises networking events and mentoring opportunities for previous awardees. The SMF scheme is managed by the Engineers in Business Fellowship, an organisation we also support to run other activities to strengthen business education for engineers. These include a competition for undergraduates and recent graduates in which teams compete to produce a compelling business plan for an engineering-based product.

Clare Cormack, a Laboratory Technician Apprentice at the Sanger Institute.

*Opposite page: Engineering students at Birmingham City University, a key partner in Greater Birmingham and Solihull Institute of Technology (IoT), Institutes of Technology (IoT’s) are a group of world-class institutions at the forefront of higher technical education and training.*
ACCELERATING INCLUSIVE AND RESILIENT ECONOMIC GROWTH IN EAST AFRICA

Gatsby has worked to create jobs, raise incomes and build opportunities for people in Africa since 1985. We are currently focussed on helping more people benefit from economic growth in East Africa.

This will require economic transformation – growth with depth that will radically change economies, lead to leaps in productivity, and offer large numbers of people pathways out of poverty.

To help achieve this, we deliver programmes that look to catalyse large-scale and lasting change in priority sectors, such as commercial forestry in Kenya. We aim to transform such sectors so they are competitive, inclusive and resilient – capable of evolving and adapting independently to future risks and opportunities.

Through the direct implementation and support of programmes in East Africa, we are building long-term capacity on the ground dedicated to this mission. We also aim to share what we are learning with others who are trying to promote inclusive economic growth.

We have established Gatsby Africa – an English charitable company limited by guarantee with branches in Tanzania and Kenya – to implement our Africa programmes. You can find more information on our website, with some initiatives profiled on the following pages.

Above: George Ouma, a rice farmer, broadcasts fertiliser on his farm in Akhero, Kisumu County, Kenya.

Opposite page: A team prepare to capture fish at a farm in Kenya.

SUPPORTING ECONOMIC SECTORS IN EAST AFRICA THROUGH THE COVID-19 CRISIS

The outbreak of COVID-19 resulted in Africa experiencing its worst economic recession for half a century. In East Africa, major industries – like textiles and tourism – were significantly disrupted or brought to a standstill for months, which resulted in large-scale job losses and significant damage to the region’s macroeconomic fundamentals. It is estimated as many as 30 million people across the continent were pushed into extreme poverty over the course of 2020, with the crisis disproportionately affecting those with less education, fewer assets, and more informal jobs.

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As an initial response to COVID-19, the teams at Gatsby Africa – together with our partners at Kenya Markets Trust (KMT) and Msingi – sought to understand the impact of the pandemic and the specific needs of the economic sectors we support. This involved close engagement with governments and the donor community, as well as listening to our partners in the private sector. While we regularly updated sector players across our portfolio with relevant data to support decision-making, in some cases we provided specific assistance to help protect businesses and workers.

– COVID-19 triggered a liquidity crisis in Kenya’s water sector; as customers became unable to pay their dues to utilities companies. Our partner KMT was at the heart of efforts to gather evidence, convene stakeholders, and design an emergency response plan. This was endorsed by the sector and the Water Service Trust Fund, which used the plan to successfully secure emergency funding from the World Bank.

– Given that aquaculture is a promising yet relatively nascent sector in East Africa, the pandemic posed an existential threat to the region’s small- and medium-sized fish farms, which were heavily affected by market restrictions and the rapid decline in demand. To enable high-potential farms to sustain their fish stocks amid plummeting sales, our partner Msingi developed an emergency response programme and directly supported farms across the region with finance and technical advice. Indeed, the team successfully helped businesses survive and maintain a level of biomass which has set a strong foundation for future growth.

– The pandemic sent a shockwave through the global textiles industry, exposing the extent to which brands depend on supply chains emanating from Asia. In East Africa, it is estimated 25,000 jobs were lost in the first six months of the crisis, as factories were forced to close, supply lines dried up and apparel sales collapsed. In response, Msingi undertook an industry-wide COVID-19 impact survey and shared the valuable first-hand information with government policymakers, donor organisations and investors to help coordinate much-needed recovery support across the region. Moreover – in the wake of the pandemic – Msingi has recognised an opportunity to promote East Africa and has stepped up its engagement with international buyers and factories, as industry players are expressing a growing interest in geographically diversifying their portfolios.

In positive news, the health impact in East Africa has proven less severe than in other geographies and the region’s economies are showing signs of recovery, as global restrictions ease and the vaccine rollout builds momentum. However – while we are confident the sectors we support will come through the pandemic – the crisis has exposed how important it is to ensure sectors are developed with resilience in mind, a central theme of our work over many years. Indeed, it is clear that East Africa does not just need economic growth; the region needs to grow labour-intensive sectors that are both competitive and capable of independently responding to risks and opportunities over the short-, medium- and long-term.
ENABLING THE TRANSFORMATION OF SECTORS IN KENYA
For over a decade, Gatsby Africa has supported the evolution of KMT, a local organisation that aims to lead the agenda on transforming key economic sectors in Kenya and ensuring large-scale wealth creation and poverty reduction. With programmes in Kenya’s water, agricultural inputs and livestock sectors, and a footprint which spans the country’s 47 counties, the organisation has improved the livelihoods of over a million households and created roughly 300,000 jobs to date, establishing itself as a valued and credible partner of the government and private sector.

Despite the outbreak of COVID-19 and the recent volatility in donor funding, the organisation has continued to make impressive progress across its portfolio. It is clear Kenya’s water sector is in urgent need of support: while 40% of the country’s population does not currently have access to safe drinking water, the demand for water in Kenya is set to significantly outstrip availability over the next decade, owing to rapidly changing climate patterns, demographic growth and the pressures of industrialisation. Working in partnership with the government, utilities companies and industry associations, KMT has helped introduce an array of innovations and regulations in the sector, which have enhanced the sustainability of provision in rural and urban areas; stemmed water losses; and facilitated greater access to safe drinking water. These innovations include the use of metering, GIS mapping tools and data management systems by utilities companies – as well as the deployment of delivery models which blend rural community ownership with private sector participation. More recently – and in close partnership with the Ministry of Water & Irrigation – KMT has been involved with developing a long-term roadmap for the sector’s transformation, capable of inspiring alignment among its many stakeholders.

While agriculture is at the heart of the Kenyan economy – accounting for a third of GDP and providing livelihoods for 80% of the population – the sector is falling short of its potential, in part owing to smallholders’ inability to access yield-enhancing agricultural inputs and extension services. Over the years, KMT has sought to address this critical constraint via an array of impactful interventions, which include introducing scratch labelling technology to reduce the incidence of counterfeit seeds (from 40% to just 10%), inspiring greater public-private collaboration to shorten the time it takes to certify seeds (from 6 weeks to 14 days); partnering with pioneer inputs firms – like Toyota Tsusho and Yara – to produce, promote and distribute crop-specific fertiliser in Kenya; piloting scalable and sustainable extension models; and building the domestic market for agricultural lime. Given that soil acidity affects 65% of the country’s limited arable land, KMT has advocated strongly for greater investment in granulated lime in Kenya and – following the presentation of the commercial opportunity at a recent sector-wide roundtable – the team secured the interest of six manufacturers, including Omya International (a world leader).

While Kenya is home to one of Africa’s largest livestock herds, the country remains a net importer of meat and its trade deficit is growing. Fragmentation and inefficient practices are resulting in low levels of production and yielding meat which is of relatively poor quality and 10% more expensive than elsewhere in East Africa. In a bid to integrate the tens of millions of pastoralists into the formal value chain and modernise the sector, KMT has adopted a comprehensive approach, which has involved:

- the promotion of animal healthcare services at farm level – as well as more sustainable and productive rearing techniques;
- the trialing of aggregation models – like feedlots and ranches – which help pastoralists access markets and derive more value from their herds;
- the development of cold chains and the institution of stronger meat safety standards and traceability requirements in processing and retail environments, which is increasingly being demanded by consumers;
- and the establishment of sector-wide platforms and forums to enable greater coordination between the government, regulators, industry associations and pastoralist groups.

KMT is generating strong momentum in this critical sector and is being recognised as an influential partner; as well as supporting the State Department for Livestock with the successful launch of a National Livestock Policy, the team has been invited to advise on an industry masterplan, which aims to galvanise stakeholders and set out how the sector could be transformed, responding to new market opportunities while managing the threat posed by environmental challenges.

Opposite page: Zablon Alenga enjoys a glass of clean and safe drinking water. He manages the Muhanda Water Project, which is supported by KMT in Western Kenya with the aim of improving water service delivery.

We reached a set of conclusions which we believe will help us to deliver against our ambitious mission.

- There remains an urgent need for economic transformation and inclusive growth in East Africa. While most countries in the region have recorded strong growth rates in recent decades, this growth has been narrowly concentrated and characterised by volatile boom and bust cycles – as a result, inequality has worsened, and widespread poverty persists. Adding further pressure, populations are growing, urbanisation is accelerating, and the climate is changing. Drawing on years of experience in East Africa and adopting a long-term, holistic and politically-engaged approach, we aim to partner with government and the private sector and help catalyse the transformation of high-potential sectors, capable of creating jobs at scale and durably improving the livelihoods of millions.

- We plan to transition from supporting eight sectors to six sectors in the coming years. This will enable us to scale up efforts in the remaining sectors, ensuring sufficient technical expertise and credibility to convene influential partnerships and drive transformative initiatives. Combining an ability to intervene and engage politically at a national level with an ability to engage stakeholders and attract large-scale investment on a regional basis, our programmes will be more flexible and in a stronger position to respond to risks and opportunities. This refined portfolio will be better insulated from the volatility associated with co-funding arrangements, which reached new highs amid the COVID-19 crisis.

- We are committed to enhancing our ability to share our learning by investing more resources in this area in future. We recognise the potential value of capturing what is working and what is not, and sharing this with other stakeholders. Indeed, our experiences could help inform the approach of governments in East Africa as they endeavour to stimulate inclusive growth in other sectors, as well as influencing how other development actors and financial institutions approach economic development.

Left: A herd of young bulls undergo finishing at a feedlot on Borana Ranch, Lakiopaa County, Kenya.

KMT has created roughly 300,000 jobs to date.

300,000
Institute for Government

The Institute for Government works with the main political parties in Westminster, senior civil servants in Whitehall, and officials and politicians across the rest of the UK to promote more effective government. It provides impartial, evidence-based advice and training, drawing on best practice and research in government, universities and business from around the world.

In relation to the COVID-19 pandemic, the Institute has undertaken research on decision-making at the centre of government, how scientific advice has been used in policymaking, and the measures introduced to support the UK economy (comparing with the response of other countries), as well as calling for a public inquiry to allow government to learn lessons from this exceptional period.

The Institute has maintained a focus on the Government’s agenda for civil service reform. A successful conference in summer 2020 was followed by reports on the relocation of civil servants, the structure of the service, and the relevance of digital technology for policymaking. A further conference was held in autumn 2021, focusing on the constitutional basis of the service.

The Institute’s net zero project outlines how government should organise itself to achieve the 2050 target, and prompted discussions with many arms of government and the voluntary sector in the run-up to the COP26 conference. Two related projects identified lessons for the UK from the efforts of other countries to incorporate evidence into transport and energy policymaking.

Centre for Cities

The Centre for Cities is an independent research and policy organisation committed to helping Britain’s cities improve their economic performance. The Centre produces practical research and policy advice for city leaders, government and businesses.

In early 2020, the Centre shifted its focus to tracking and researching the economic impact of COVID-19 across the UK’s largest cities and towns. Publicly-accessible data trackers were launched covering case numbers, city and town centre footfall and spend, unemployment, furlough and job postings. City leaders have found this real-time analysis extremely valuable in understanding the impact on their areas, and planning for the re-opening and recovery of their economies. The Centre has released over 100 briefings, blogs, podcasts and research reports about COVID-19, covering topics including cities’ use of technology to tackle the pandemic, the effects of Eat Out to Help Out, the impact of lockdowns on labour markets, and analysis of the furlough scheme.

Levels up has always been a key theme for the Centre, and one that is of even greater importance given the uneven impact of the pandemic. Working with the Connected Places Catapult, the Centre analysed which of Britain’s cities and largest towns have the most potential to harness extra public R&D funding and convert it into wider local economic growth. This analysis will continue to be valuable for years to come as investment decisions are made. Devolution of powers and resources will also be key. In September 2020, the Centre published new research, setting out how the Government should use its levelling-up white paper to re-organise and simplify local government. They published a report in May 2021 setting out why Metro Mayors should be given more powers over skills, housing, transport and innovation to improve the prosperity of their areas.

To inform the Comprehensive Spending Review in late 2021, the Centre set out how the Government could deliver on key parts of its domestic agenda. A report on Building Back Better from COVID-19 explored why, how and where jobs were created across the UK during the 2013 to 2019 ‘jobs miracle’ and why this matters for places’ economic prosperity. For reaching net zero, the Centre published research in July 2021 on decarbonising the city, particularly in housing, planning and public transport. In addition to its large body of work on levelling up over the last year, the Centre is working on comparing the public transport systems of UK and European large cities, and will be published in 2022.
CSTI, based at Cambridge University’s Institute for Manufacturing, carries out practical policy research exploring what makes national innovation systems effective at translating new science and engineering ideas into technologies, industries and economic wealth.

An important focus of CSTI’s recent research has been on the relationships between technology, manufacturing and sector policies. As well as academic publications in journals for innovation economics, technology management, and policy, CSTI researchers also produced studies and briefing notes for key UK stakeholders.

In the context of the UK Government’s commitment to the development of a new funding agency – announced in February 2021 as the Advanced Research & Invention Agency and modelled on the US Advanced Research Projects Agency (ARPA) – CSTI developed a programme of activities aimed at better explaining the ARPA-like agencies have been most effective. As part of this work, CSTI submitted a policy briefing note to the House of Commons Science & Technology Committee inquiry into ‘a new UK research agency’. Invited policy seminars on the new model were given to a variety of UK innovation policy stakeholders, with CSTI also providing informal advice on ARPA (and alternative models, eg Bell Labs) to policy advisors in 10 Downing Street. CSTI also arranged an international roundtable workshop comparing international lessons and practices from ARPA-like agencies in early 2021. A PhD student is studying mission-oriented challenge programmes, with a focus on the life sciences sector.

CSTI continues to develop its research agenda related to regional innovation policy, exploring academic and policy collaborations. New work in this area will build on CSTI research on R&D diffusion dynamics within regional innovation ecosystems. This work will explore, in more depth, the role of intermediate research and innovation institutes in translating university-based research into capabilities underpinning regional economic value capture opportunities. This research will explore how intermediate institutes help provide (or develop) critical research and innovation resources and competences necessary to support a complete innovation pathway within a regional economy. This work will also investigate the importance of the configuration of regionally-clustered industrial value chains in shaping potential innovation pathways for regional economic value capture.

POLICY LINKS

The Policy Links unit is a not-for-profit consultancy unit that works with governments and international organisations to develop effective industrial innovation policies. The Unit offers consultancy services and capacity-building programmes based on the latest academic thinking and the study of international best practice.

Policy Links continues to strengthen collaborations with the UK Government and associated agencies. The Unit produced a series of rapid-response studies for the Department for Business, Energy and Industrial Strategy (BEIS) to inform manufacturing policy responses to COVID-19, and offered evidence to the House of Commons International Trade Committee inquiry on the impact of COVID-19 on trade of manufactured goods. Policy Links collaborated with Innovate UK to inform future international collaborations in advanced manufacturing and the Make Smarter digitalisation programme. The Unit also delivered a bespoke capacity-building programme for policy stakeholders from BEIS, HM Treasury and devolved administrations.

In February 2021, together with CSTI, the Unit produced and launched the first edition of the UK Innovation Report, a new study that benchmarks the UK’s industrial and innovation performance in a global context. While numerous sources of data on the topic of innovation exist, the UK Innovation Report aims to make a distinctive contribution by bringing together, in a single place, innovation and value-added indicators in a concise and accessible format. In doing so, the report seeks to demonstrate the value of combining different types of datasets to facilitate policy discussions on innovation and industrial performance – and the interplay between them. There are ongoing plans to update the data annually to make it an authoritative source of the information for all policy stakeholders.

Outside of the UK, Policy Links strengthened its collaborations with international organisations such as the Inter-American Development Bank, with projects in the Caribbean, and the United Nations Development Programme to inform manufacturing development policies in Cambodia. Findings from the Policy Links report ‘Innovate Indonesia’, produced for the Asian Development Bank, were presented to Indonesia’s Minister of Research and Technology and the British Chamber of Commerce in Indonesia. Articles based on the Unit’s work were featured in newsletters and websites of the World Economic Forum and the United Nations Industrial Development Organisation.

BABBAGE POLICY FORUM

The Babbage Forum aims to provide a unique network and symposia within which to develop novel thinking and insights at the interface of economics, engineering and management to inform and underpin industrial policies for economic competitiveness and growth.

The network is a group of leading international economists, engineers and operations academics and practitioners. Babbage symposia have highlighted the need for better-integrated disciplinary foundations for the development of policy in the areas of technology, innovation and manufacturing. They paid particular attention to the role of manufacturing and its accelerating evolution in response to changing technologies and global structures. Issues of productivity, competitiveness and leadership have also been addressed.

We recently provided renewed support for a second phase of Babbage activities. The opportunity now exists to build ‘practical’ tools, processes, guidelines and case studies for policymakers and politicians. This will include a new dedicated Principal Industrial Research Fellow to develop and deliver these materials. There will also be efforts to build the international community of early-career scholars and practitioners by providing a platform for the next generation of leaders to explore multi-disciplinary, practice-oriented work and to act as a reference community for policymakers.
NORMAN FOSTER and funded by GATSBY.

Visual Arts (SCVA) – designed by Norman Foster.

The collection was housed in a new building – the Sainsbury Centre for Visual Arts (SCVA) – designed by Norman Foster and funded by Gatsby.

We continue to support SCVA, and other arts institutions founded by Robert and Lisa at UEA.

We have long relationships with a small number of other organisations and initiatives, and we continue supporting these as they seek ways to make inspiring art accessible to new generations. Supported organisations include the Chamber Orchestra of Europe, the Royal Shakespeare Company and the Royal Academy of Music.

Above left: Sir Simon Rattle rehearsing with the COE at the Berlin Philharmonie (October 2020), photo COE Archives.

Above: Leiko Ikemura exhibition, ©Leiko Ikemura, photo Andy Crouch.

THEATRE ARTISTS FUND
The Theatre Artists Fund is a new recipient of Gatsby funding, which provides critical support for theatre workers and industry freelancers across the UK in need of urgent financial assistance due to the devastating impact of COVID-19 on the theatre sector.

The Fund, started in July 2020 and spearheaded by Sir Sam Mendes, has raised over £7,800,000 to deliver over 7,000 emergency grants towards living costs and signposting to mental-health support, with 56% of grants going to recipients outside of London.

By supporting freelance professionals now, the Fund will ensure that hundreds of theatres across the UK can depend on a workforce to be available when needed.

The aims of the Fund are to enable artists, both experienced and emerging, to remain in their careers; champion diverse groups more vulnerable to financial hardship; encourage fresh talent into the creative industry, and to ensure theatre can continue to improve communities and learning.

CAMBRIDGE ARTS THEATRE
Gatsby is also supporting The Cambridge Arts Theatre as it undergoes a major refurbishment of its auditorium. This thriving regional showcase, established in 1956 by the economist and founding member of the Arts Council John Maynard Keynes, has helped launch the careers of theatrical luminaries such as Sir Ian McKellen and Sir Sam Mendes, and celebrated many significant milestones, from Margot Fonteyn dancing her first Swan Lake to Harold Pinter’s premiere of The Birthday Party. It is the playhouse of choice in the region, with regular visits from companies including The National Theatre, English Touring Opera, and Shakespeare’s Globe.

Despite a part-rebuild in the 1990s, the Theatre is now in critical need of attention due to a fundamental problem with the circulation of audiences around the building and lack of effective bar and catering spaces.

The works will include major changes and improvements to the fabric of the auditorium, including new seating, a redesigned balcony, and seating configuration to improve sight lines and audience comfort. There will be improvements to allow for a wider range of programming choices; improved acoustics; a new technical infrastructure to replace its outdated and worn-out equipment, and more environmentally friendly and energy-efficient air-conditioning and lighting systems.

These significant upgrades will ensure the future survival of the Theatre and its artistic outreach in the region.

£7.8m
The Theatre Artists Fund has raised over this amount to date.

Above: Visitor in Leiko Ikemura exhibition, ©Leiko Ikemura, photo Andy Sapey