Royal Academy of Engineering

Annual Report and Accounts

2021|2022

Who are we?

A charity
We deliver public benefit from engineering excellence and technology innovation.

A National Academy
We provide progressive leadership for engineering and technology, and independent expert advice to government, in the UK and beyond.

A Fellowship
We bring together an unrivalled community of leading business people, entrepreneurs, innovators and academics from every part of engineering and technology.

Our **vision** is engineering in the service of society.

Our charitable **mission** is to deliver public benefit through engineering excellence and technology innovation.

We have outstanding convening power nationally and internationally.

We understand how to make systems and innovations make a positive difference to society.

We are trusted for our independence and professional excellence.

Values

In everything we do, we are guided by our five values:

- **Progressive leadership** – embodying the courage, commitment and ambition to drive positive change for engineering and society.
- **Diversity and inclusion** – creating cultures in which everyone can thrive and diverse perspectives enrich our collective performance.
- **Excellence everywhere** – bringing evidence, expertise, integrity and a passion for continuous improvement to everything we do.
- **Collaboration first** – prioritising collaboration and building partnerships to improve outcomes.
- **Creativity and innovation** – solving problems and generating opportunities through creative thinking and innovation.

Royal Academy of Engineering
Incorporated by Royal Charter

HRH The Prince Philip Duke of Edinburgh KG KT OM GBE
Founding Senior Fellow

HRH The Princess Royal KG KT GCVO QSO
Royal Fellow

HRH The Duke of Kent KG GCMG GCVO
Royal Fellow

Professor Sir Jim McDonald FREng FRSE
President

Front cover photo:
Young engineer at Rolls-Royce examines equipment

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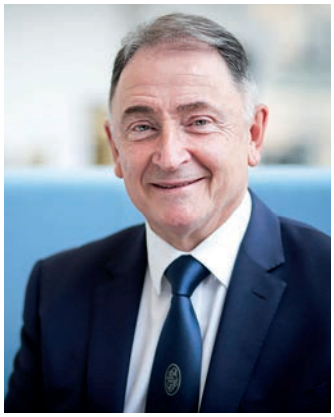
Foreword



At the outset of the 2021–22 financial year, we very sadly lost our Founding Senior Fellow, HRH The Prince Philip Duke of Edinburgh, who played a crucial role in the creation of the Fellowship of Engineering in 1976. His vision for the Fellowship was a body that served as an effective voice for the profession in national affairs, drawing together eminent engineers and technologists from all disciplines to provide advice to government and leadership for the profession. It is a vision that has shaped our development to date, and also one that requires us to continually test ourselves on whether we are fulfilling that role to best effect. After a turbulent first year of the pandemic, the last financial year has seen the Academy successfully demonstrate resilience. Our confidence and influence has grown in line with that vision, and significant impact has been delivered against our overarching strategic goal to build a sustainable society and an inclusive economy that works for everyone.

The pandemic, as we reported last year, prompted the Academy to create a 'Positive Response' programme aimed at ensuring that engineering expertise was effectively deployed in response to the COVID-19 crisis. While the sense of urgency has changed somewhat, the need for high-quality engineering expertise to inform pandemic response and resilience has not. Against this backdrop, the National Engineering Policy Centre, hosted by the Academy, was commissioned by Government Chief Scientific Adviser, Sir Patrick Vallance FRS FMedSci, to undertake a review of infection control in the built environment, and to consider what actions might be needed, both as we learn to live with COVID-19 and in the event of future pandemics. The research undertaken helped to inform the government's public messaging on the importance of fresh air and the resulting report, *Infection Resilient Environments*, included recommendations about building ventilation that have prompted action at the heart of government.

Our influence has also been felt on the international stage. COP26 was, naturally, a focal point for several strands of Academy work on sustainability. Engineering X – a partnership between the Academy and Lloyd's Register Foundation to build global alliances to tackle the most pressing engineering, safety and sustainability problems – featured in an official UN side event at COP26, which highlighted the programme's work on open burning of waste. This was a particularly notable outcome as it represented the first time that open burning of waste has been raised at a high-level forum and momentum is now building to galvanise global action on this critical issue, catalysed by the Engineering X partnership.

The Academy's commitment to sustainability extends well beyond COP26, and we are increasingly seeking to advance engineering's contribution to a more sustainable future across all of our activities. Our *This is Engineering* campaign, which has now amassed more than 57 million views, focused its films in autumn 2021 on profiling engineers whose work seeks to improve the environmental impact of packaging and of driving. In September 2021 we launched a schools Sustainable Futures Innovation Challenge to mark the 10th anniversary of the Connecting STEM Teachers (CST) programme. Since its inception, CST has trained 8,596 teachers and provided more than 764,000 STEM experiences for students. We know that young people are particularly motivated to address climate change, and continue to highlight that engineering offers varied and creative opportunities to make a difference to people and the planet.

In the shorter term, it is today's emerging engineering leaders and pioneers who give us confidence that the most complex of challenges can be tackled with the right engineering involvement. A significant proportion of our grants to talented researchers and innovators now support sustainability solutions – from circular economy lithium-ion batteries to technologies to decarbonise the water industry. In the last year we have also decided to reframe our Major Project Award to target sustainability. From 2022, it will recognise a team of UK-based engineers who have delivered a major engineering project that has had a substantial impact on creating a more sustainable society.

With our outward facing activities advancing progress towards our sustainable society goal, it is all the more important that our own operations meet the highest standards of sustainability. To that end, we are working with the environmental consultancy Planet Mark to calculate a carbon baseline and set targets for carbon

reduction in the years ahead. In addition, we are currently piloting a toolkit that will enable our Enterprise Hub members to understand the carbon impacts, both positive and negative, of their businesses.

This is one of several exciting developments in our innovation activities over the past year. We were delighted to see the Enterprise Hub named as one of the three most active UK accelerators by *Sifted*, a leading source of startup intelligence. The Northern Ireland base for our Enterprise Hub celebrated its first anniversary with a joint visit to Belfast and Dublin by the Presidents of the UK and Irish Academies, including a meeting with the President of Ireland, Michael D Higgins. We are also pleased to be piloting new Regional Talent Engines, bringing together our education and enterprise programmes to enhance opportunities for engineers in regions around the UK to pursue careers in the local innovation ecosystem.

In addition, the last year has seen our research activities reach some key milestones. We were thrilled to celebrate 20 years of our Research Fellowship programme, which has enabled more than 200 exceptional engineering researchers to establish themselves as future leaders. We were also very pleased to be able to make the first Bhattacharyya Award for Business-University Collaboration to the University of Surrey and the 5G Innovation Centre, reflecting the vital role that such collaborative research plays in underpinning the UK's innovation capability.

Alongside supporting outstanding engineering research and innovation, our strategy commits us to ensuring that the benefits of engineering are more equitably experienced across wider society. This year marked the 10-year anniversary of our groundbreaking publication *Engineers for Africa*, which highlighted the significant gaps in engineering capacity across the continent. This in turn formed the basis for our capacity-building partnerships with engineers in sub-Saharan Africa. This year we engaged widely with our stakeholder community to reflect on progress made over the last decade and agree priorities for the next chapter of our work.

An important strand of our work to create a more inclusive economy has been our collaboration with the Engineering Council on engineering ethics. In addition to producing a joint report and commissioning case studies to support the teaching of ethics, we are in the process of conducting a nationwide survey to understand the perspective of both employers and individual engineers on ethical practice in engineering today.

Finally, we are pleased to have made further progress on our work to improve the diversity and inclusivity of the UK engineering community. This includes the launch of a higher education diversity impact programme to understand what works and improve uptake of successful approaches across UK universities, as well as electing our most diverse group of Fellows in the Academy's history under the Fellowship Fit for the Future campaign.

As we write, we have reached the mid-point of our 2020–25 strategy period – a period that has seen extraordinary global turbulence, with no sign of this abating. The strategy has proved extremely valuable for guiding progress and aligning the outstanding efforts of our staff, Fellows and partners in the areas where we can make most difference. Our deep appreciation goes to all who have contributed so much over this past year.

We have now started work to envisage what a successful Academy might look like in 2040, to provide a bridge to the next strategy period and develop a long-term view of what impact at scale means for our organisation. There is no question that the role of engineers in tackling our shared societal challenges is only becoming more important. The vision set out nearly half a century ago by our Founding Senior Fellow remains as relevant today as it has ever been.

Professor Sir Jim McDonald FREng FRSE
President, Royal Academy of Engineering

Dr Hayaatun Sillem CBE
CEO, Royal Academy of Engineering
CEO, Queen Elizabeth Prize for Engineering Foundation

Honouring our Founding Senior Fellow

HRH The Prince Philip Duke of Edinburgh KG KT OM GBE 1921 to 2021 | Founding Senior Fellow

We will always be indebted to our late Founding Senior Fellow, HRH The Duke of Edinburgh KG KT OM GBE, for his interest, support, and advocacy for engineering and technology, which led to the Fellowship's formation. As our Founding Senior Fellow, HRH The Duke of Edinburgh worked tirelessly to support the Academy right from its inception in 1976 as the Fellowship of Engineering.

His genuine passion for engineering was evident in his many visits to the Academy and in his typically challenging discussions with the engineers he met. He was a staunch supporter of UK industry and presented the Academy's highest award for UK engineering, the MacRobert Award, almost every year since it began in 1969.

In October, the Academy held a reception at Prince Philip House to commemorate our Senior Fellow and his immeasurable contribution to the Royal Academy of Engineering and the engineering profession. The reception was attended by guests including Fellows, Prince Philip Medal winners and friends of the Academy, as well as Academy President Professor Sir Jim McDonald FREng FRSE and CEO Dr Hayaatun Sillem CBE. Guests shared their memories of Prince Philip over lunch and listened to an inspiring speech from Royal Fellow HRH The Princess Royal KG KT GCVO QSO, about the importance of the Academy's role in unifying the voice of engineering to solve global problems, and diversifying the profession.

We also announced the creation of the Prince Philip Fund, established in his memory. The fund will exist in perpetuity to realise his vision for the Academy in serving society and secure its long-term future at Prince Philip House, Carlton House Terrace, London, for future generations. It will enable continued philanthropic support to ensure that Prince Philip House remains a home for engineering excellence for the next 50 years and beyond.

Prince Philip's legacy will also be continued through the Prince Philip Medal, which recognises exceptional contributions to engineering through practice, management, or education. In 2021, we celebrated the medal's 30th anniversary, when Dr Gladys West became the first woman to receive the medal, for her contribution in the development of GPS.

HRH The Princess Royal addresses guest during the reception to commemorate our late Senior Fellow

How we deliver impact

Harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone

Inputs

Expertise and leadership from Academy staff, Fellows, awardees, and industrial and institutional partners

Funding from government, industry and other partners

Consultation with and applications from engineers and innovators

International and regional partnerships and networks

Outputs

Talent and diversity	Innovation	Policy and engagement
Talented researchers, innovators and entrepreneurs with enhanced skills, careers and connections More and more diverse skills and inclusive cultures in engineering research and business	Engineering and technology research outputs with high potential for commercialisation and societal benefits More innovative, resilient and investment-ready engineering businesses	Policymakers accessing engineering expertise and systems thinking Engineers engaging with the public on how innovation can support and enhance their lives

Outcomes

A world-leading, truly inclusive and influential engineering workforce	Ever more innovative engineering solutions for a more sustainable and resilient future Engineering jobs that make the UK more productive, secure, healthier, safer, and more competitive Greater investment into UK innovation	Policymakers equipped to make more effective policies, including on net zero Wider recognition of the value of engineering

Impact

Faster progress towards net zero and a sustainable world

Engineering and technology better harnessed to address global and societal challenges

More balanced and inclusive economic opportunity across the UK

UK more competitive and productive

Building a sustainable society...

We advised government on achieving a **thriving, low-carbon economy through our work on applying a systems approach to the net zero challenge**

This is Engineering **showcased how engineers are creating a sustainable future,** with COP26-aligned This is Engineering Day content reaching **more than 33 million users across social media**

35 of the 93 Research Fellows we fund are working on sustainable technologies, including renewable energy, clean drinking water and energy-saving electronic devices

Engineering Zero, an Academy-wide campaign to **promote the crucial contribution engineers can make to a net zero future,** was launched in the run up to COP26

We've **supported 100 UK startup, spinout and scale-up companies** working on sustainability solutions

We hosted the UK leg of a special 24-hour live broadcast for UNESCO's World Engineering Day for Sustainable Development, **attracting more than 30,000 views**

...and an inclusive economy

We supported more than **1,000 schools** in some of the UK's most underserved areas to offer almost **200,000 STEM experiences to students**

Our infection resilient environments work **highlighted gaps and current systemic weaknesses in UK buildings and transport** and set out an agenda for change to reduce COVID-19 transmissions

The Hamilton Commission report on improving representation of Black people in UK motorsport made **recommendations to encourage more Black students to pursue subjects that lead to engineering careers**

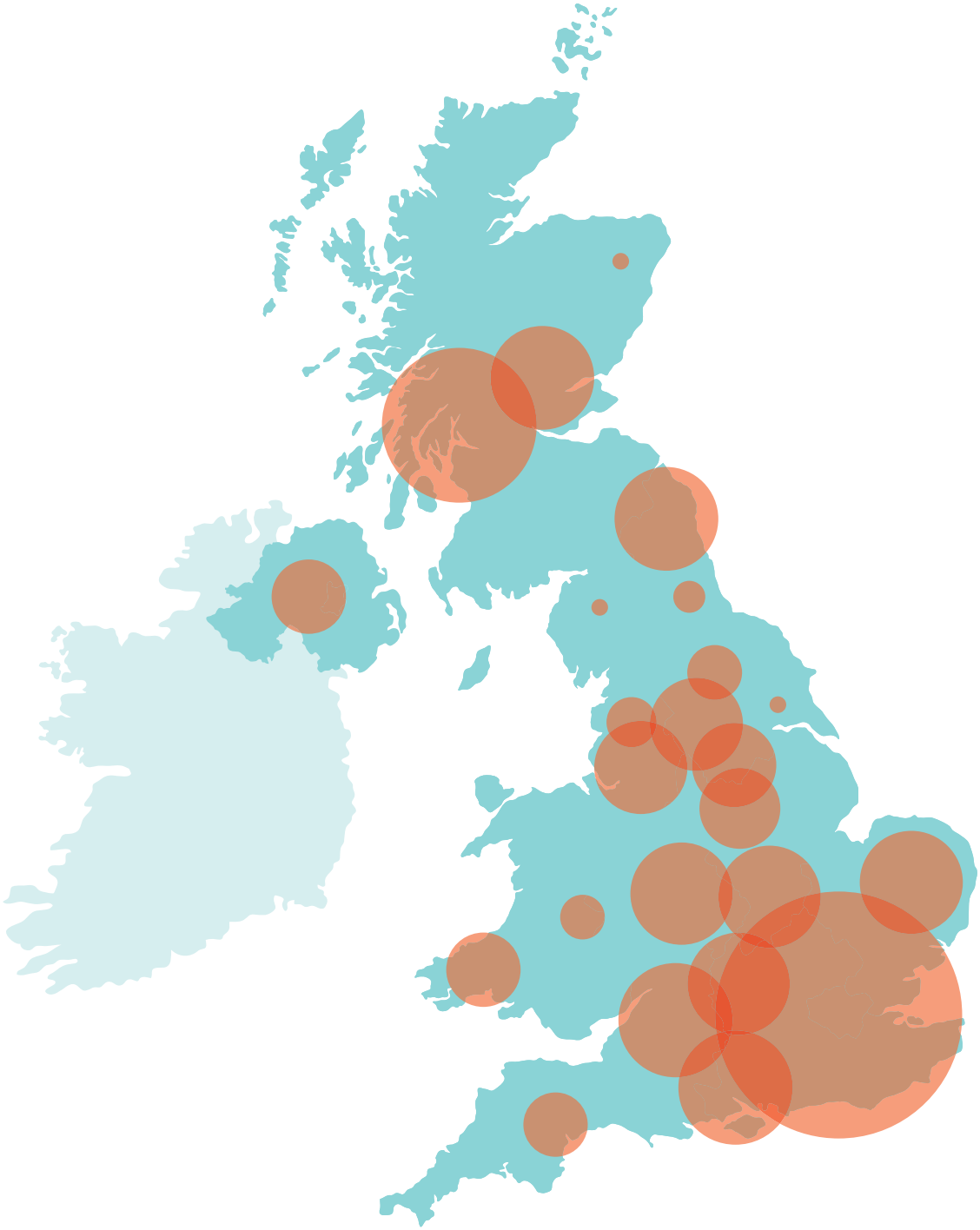
Our *Engineering Ethics* report **recommended that ethical culture and practice should be embedded in the profession** in the same way as health and safety considerations

We launched our Regional Talent Engines programme to offer **tailored support to aspiring engineering and technology entrepreneurs** in Northern Ireland, North West England, North East England, and Yorkshire and Humber

Our most diverse group of Fellows in the Academy's history was elected under the Fellowship Fit for the Future initiative **with over 50% being from underrepresented groups**

Funding exceptional engineering in the UK

In the UK, we award grants for research, innovation, supporting startups, spinouts and SMEs, enhancing STEM education, and engaging the public.



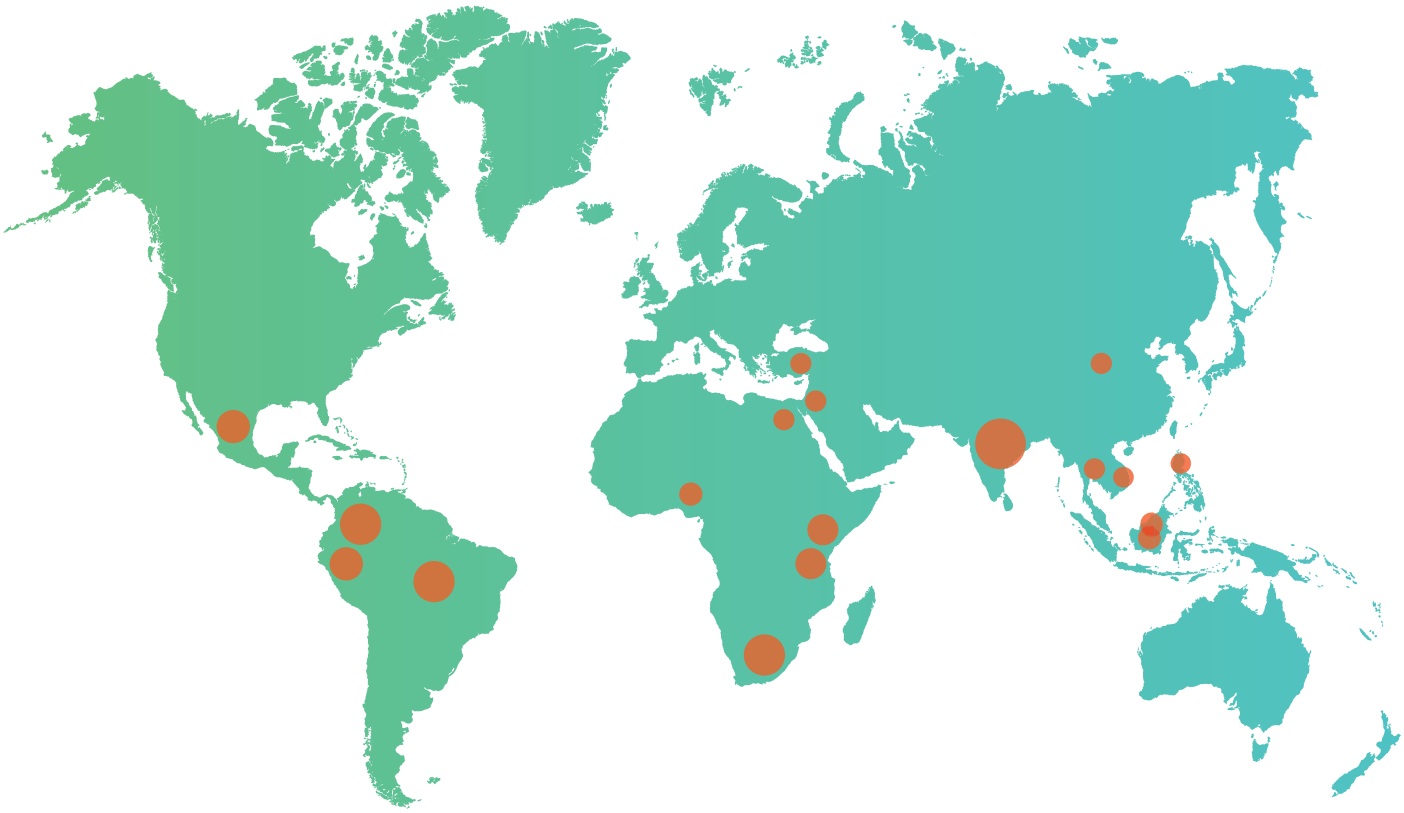
A heatmap of awards made across the UK is shown above by NUTS2* region. The map shows only grant funding and does not include other regionally based Academy activities.

*Nomenclature of Territorial Units for Statistics or NUTS (French: *Nomenclature des unités territoriales statistiques*) is a geocode standard for referencing the subdivisions of countries for statistical purposes.

Funding exceptional engineering across the world

Internationally, we fund engineering innovators supported by the Global Challenges Research Fund and the Newton Fund. Our programmes include:

- Africa Catalyst, which strengthens professional engineering bodies in sub-Saharan Africa
- Africa Prize for Engineering Innovation, which supports, trains and mentors engineering entrepreneurs across sub-Saharan Africa
- Frontiers, which connects researchers, innovators and practitioners from around the world to work together on new ways to solve complex global challenges
- Higher Education Partnerships in sub-Saharan Africa, which awards grants to university projects in sub-Saharan Africa to strengthen relationships between academia and industry
- Leaders in Innovation Fellowships, which helps engineers worldwide to commercialise their innovations.



A heatmap of directly related expenditure made across Official Development Assistance (ODA) programmes by country.

Talent and diversity

Engineers are vital in the drive for a more sustainable society, providing leadership both within and beyond the UK. Through our education and skills programmes, we continue to work to address the engineering skills crisis, including by supporting more young people from underrepresented backgrounds to enter the engineering profession. As the UK strives to recover from the COVID-19 pandemic and focuses on working towards a net zero future, we need more highly skilled engineers and technicians to address complex and ever-evolving challenges. Our work with teachers and employers is making the profession more resilient, diverse and prepared for the future, as part of our goal to ensure that the UK has a world-leading and truly inclusive engineering workforce that sets the highest standard for technical excellence, ethics and professionalism.

Over 10 years, Connecting STEM Teachers has trained 8,596 teachers and engaged 5,967 schools, 80% of which are secondary, resulting in more than 764,000 STEM experiences for students

For the past decade, the Connecting STEM Teachers (CST) programme has been supporting teachers to engage a greater number and wider spectrum of school students with STEM education and engineering careers awareness. Supported by Shell as a strategic partner, as well as Amazon, The Arthur Clements Fund, Boeing, the estate of the late Mr John Gozzard, the Helsington Foundation, and the Royal Air Force, the programme's 48 teacher coordinators have built networks in regions across the UK that offer peer-to-peer support, training, collaborative projects and much more. In September 2021, the programme celebrated its 10th anniversary with a national Sustainable Futures Innovation Challenge. Pupils aged 9 to 14 were invited to come up with creative solutions to tackle some of the biggest problems that are impacting our environment, with winners announced at a celebration event at Prince Philip House in June 2022. The challenge launched with an interactive workshop hosted by *TIME* magazine's 2020 'Kid of the Year', Gitanjali Rao – inventor, author, scientist, engineer, and STEM promoter. More than 1,500 students from 37 schools across the UK attended the workshop, with teachers sharing feedback that indicated many of the young people were inspired to not only take part in the challenge but also to consider themselves as STEM innovators.

Students from Ysgol Gymraeg take part in a STEM club

In one of our first hybrid events since the COVID-19 pandemic started, 65 guests visited Prince Philip House for our annual D&I conference, while 120 more joined remotely. Panel discussions unearthed the importance of using evidence-based strategies to drive and evaluate D&I, the power of sharing stories, and the need for allyship to be reflected throughout an entire organisation. They also emphasised the importance of learning from both successes and failures when creating inclusive products and systems that work for everyone. Several polls gathered live feedback on the discussions and captured the takeaways that it was hoped delegates would gain from the day – in one such poll, 89% of attendees agreed that the conference had inspired new ideas about how to approach D&I within their organisations.

We also offer free-to-download STEM teaching and learning resources to enrich and enhance the STEM curriculum or be used in after-school clubs, which are designed to be interactive and encourage discussion. Covering topics ranging from entertainment to engineering in a pandemic, and the future of flight, more than 8,500 resource boxes have been sent to schools to date, with a further 32,500 individual packs sent to students learning at home during lockdowns.

Sharon Rees-Williams, a STEM club organiser at Ysgol Gymraeg in Abercynon, said: "We had a thriving STEM afterschool club with some very enthusiastic pupils and the Academy's STEM boxes were great to get us going – [they] give us more confidence to try different activities, and also show us what resources are needed... Enthusiasm for cross-curricular work has soared, and project-based learning approaches have been adopted. The STEM club participated in and won a network STEM challenge. A range of staff members have been involved and report excitement across the school."

Gerard Cocker, subject leader for design technology at Dover Grammar School for Girls, added: "We are in an area of lower social aspiration, so raising expectations and aspiration was crucial alongside demonstrating that the world of STEM is achievable. The combination of the Academy kits, the teaching resources and online information has been incredibly helpful. The results have been striking in terms of how students perceive the world of STEM, with some students reassessing their options and career routes."

The Welsh Valleys Engineering Project (WVEP) is an initiative developed jointly by the Panasonic

Trust and the Academy that started in 2018, funded by the Trust and delivered by the Academy. Its aim is to create centres of excellence in STEM teaching and improve learning opportunities in the South Wales valleys by bringing real-world engineering practice into schools and colleges. The programme is particularly keen to help increase diversity in STEM careers, engaging with groups that are currently underrepresented in engineering. This year, WVEP received a commitment of funding totalling £349,697 from the Welsh Government's Tech Valleys Programme to extend its employer engagement activities to cover all 53 schools in Blaenau Gwent and Merthyr Tydfil for four years from the spring term of 2022. The expansion will help create a sustainable legacy of better-resourced schools, upskilled teachers and closer alignment between the STEM curriculum and the needs of STEM businesses in the area. It will also offer valuable opportunities for social mobility and contribute to the pipeline of highly skilled workers that the Welsh Government's £100 million Tech Valleys programme aims to facilitate. The programme has so far provided more than 20,000 STEM learning opportunities and has awarded 69 Panasonic Trust Future Engineer bursaries to post-16 students, with 33% of bursaries awarded to women students in academic year 2020/21. In partnership with Amazon, we've also launched a new bursary for women engineering students from low-income households to support their study of computer science or an engineering-related degree at a UK university.

A focus on diversity and inclusion (D&I) is integral to our education activities, but it is also embedded across all the Academy's work to ensure we are contributing to a more representative and inclusive profession in everything we do. The Academy's D&I programme continues to work with industry, education institutions, partners, and professional engineering institutions (PEIs) through activities such as the D&I Progression Framework and the Graduate Engineering Engagement Programme (GEEP), to attract and retain talented people from all backgrounds, and help build a truly inclusive workforce.

This year, we launched a new diversity impact programme aimed at transforming outcomes for engineering students in higher education. The programme engages directly with university engineering departments, offering them funding for projects that address the unequal outcomes experienced by students from diverse and underrepresented groups. We awarded the first grants to 11 projects in March, among which are several that focus on low socioeconomic backgrounds and neurodiversity – two areas currently underserved by research. Available data suggests career progression and sense of belonging within engineering for students from these groups is weak. Other projects will explore the impact an inclusive culture can have on the outcomes of students from diverse and underrepresented groups; and focus specifically on disability, gender, race, and ethnicity. One project leader, Kawal Rhode, a professor of bioengineering at King's College London, noted: "We have carefully reviewed the findings of the Hamilton Commission Report and our project, 'Success for Black Engineers', aims to better understand the needs of pre-university Black students interested in engineering degrees and our own Black engineering students... to ensure their success at King's."

Over the last six years, more than 1,000 students from over 66 universities have taken part in our GEEP programme, which has resulted in at least 250 employment opportunities including internships, graduate placements and jobs

This year, we expanded our award-winning Graduate Engineering Engagement Programme programme – which works with employers to increase the transition of engineering students and graduates from underrepresented backgrounds into engineering employment – offering places to more participants. In partnership with The Windsor Fellowship, the programme also now includes more activities and opportunities for participants.

Alumnus Darrell Njogo is currently undertaking an industrial placement as an aerospace engineer at BAE Systems. He describes his experience on the programme as "invaluable". "The programme helped me tailor my CV for the right roles and develop skills that are critical for the workplace as well as allowing us [to] meet with employers," he adds. "For me, this was very beneficial as that's where I met my current employer. I got to learn about the company, what it wants from prospects and made key links that got me the role I am in now." Darrell is fulfilling a lifelong passion for aviation and hopes to undertake an MBA in air transport management to combine the business side of the industry with the technical background gained through his degree. "I have gained industrial experience that could never be taught within my degree: understanding how the engineering workplace operates, the different opportunities available and what works for me," he says. "The personal development I experienced through the programme and networking opportunities are the biggest benefits I've gained. I noticed how important networking is and how meeting key people in industry could support your career development and open doors you didn't even know existed. The Academy helped me to get where I am."

Innovation

We invest in some of the UK's most creative and exciting engineering ideas and businesses, by offering support, training, mentoring, and funding to talented innovators, researchers and leaders from across the profession. We work with industry, entrepreneurs and academia to create wealth, employment and benefit for society.

In October, the Northern Ireland (NI) Enterprise Hub celebrated a successful first year, during which it has supported four new NI-based entrepreneurs to set up and grow their operations. The date was marked with a visit from Academy President Sir Jim McDonald, who officially opened the NI Hub's home in Ormeau Baths, Belfast. The President also signed a Memorandum of Understanding with the NI Department for the Economy, formalising an agreement between the organisations to work together to deliver an engineering talent programme in Northern Ireland, inspired by our Welsh Valleys Engineering Project.

In January 2022, our Enterprise Fellowships programme was named a top three UK accelerator by *Sifted*, the European startup media site, established by the *Financial Times*. The ranking, created in conjunction with Beauhurst, tracked the accelerators that sponsored the most startups between 2011 and

NI Hub members with Ana Avaliani, Academy Director of Enterprise and Sustainable Development (far left), Gillian Gregg, Senior Business Development Manager NI (centre) and Sir Jim McDonald (third from right)

In almost 10 years, we have supported over 300 researchers, recent graduates and SME leaders to start up and scale up businesses that can give practical application to their inventions and awarded over £8 million in grant funding, which has led to £800 million in follow-on funding and over 5,000 new jobs

2018. And the Enterprise Hub's activities continue to grow. In September 2021, a substantial gift from Ian Shott CBE FREng helped us to launch the Shott Scale Up Accelerator – a six-month programme run twice a year, offering a support package to individuals in decision-making roles to develop their leadership skills in high-growth engineering and technology SMEs. The support on offer is helping to scale up businesses built around technologies of strategic importance for the UK government, such as AI, digital and advanced computing, energy, bioinformatics, and smart machines, and is positioned to play a key role in supporting UK economic recovery post COVID-19.

Meanwhile, existing Hub members continue to achieve success: in April, Wootzano, which has developed a state-of-the-art fruit-picking robot, signed a £300 million deal with one of the largest fresh produce packing houses in the UK. Hub member Dr Atif Syed and the Wootzano team also raised over £2.5 million in follow-on funding. In May, clean-tech spinout Kenoteq, founded by Dr Sam Chapman, received £1 million from Zero Waste Scotland to commercialise production of its brick made of recycled construction waste, the K-Briq, to more than two million bricks per year.

In 2021, our Research Fellowships programme celebrated its 20th anniversary. Over these 20 years, the scheme has awarded more than £100 million in funding to over 200 early-career engineering researchers. Two Research Fellows have also gone on to become Academy Fellows, while two have achieved professorships and six have received Academy and Engineers Trust Young Engineer of the Year Awards. Over the last 35 years, our Research Chairs and Senior Fellowships scheme has successfully supported over 200 awardees in UK universities to undertake use-inspired research that meets the needs of their industrial partners. And this year, in partnership with WMG at the University of Warwick, we announced the University of Surrey's 5G Innovation Centre (5GIC) as the first ever winner of the £25,000 Bhattacharyya Award. This was presented in recognition of an exemplary academia–industry partnership that has helped to build the UK's work in 5G technology from the ground up and produced world-leading innovation in the field. Surrey's 5GIC has built collaborations with more than 27 global industrial partners and over 300 UK SMEs since its launch in 2013, bringing together leading academics and companies to help develop the 5G infrastructure that will underpin the way we communicate, work and live. 5G technology is estimated to be worth up to £173 billion to the UK economy by 2030, increasing productivity, driving modernisation and enabling transformative applications in automation, healthcare, manufacturing, self-driving vehicles, and remote robotics. Its evolution into 6G is set to help address grand societal and industrial challenges, such as the digital divide and privacy, as well as support efforts towards achieving the net-zero national agenda.

We also invest in innovation and capacity building globally. February 2022 marked 10 years since the publication of the *Engineers for Africa* report, which highlighted a shortage of engineering skills in the region and prompted the creation of three programmes to bridge this gap: Higher Education Partnerships in sub-Saharan Africa (HEP SSA), Africa Prize for Engineering Innovation and GCRF Africa Catalyst. To date, we have funded innovators, higher education institutions and professional engineering bodies in 24 countries across Africa, helping them to improve knowledge and skills, share best practice, promote professionalism, increase local engineering capacity, and develop scalable engineering solutions to local challenges.

Our Industrial Fellowships scheme enables mid-career academics and industrialists to undertake a collaborative research project in either an industrial or academic environment. It aims to strengthen the relationship between industry and academia by providing an opportunity to establish or enhance collaborative research between the two parties.

Industrial Fellow Kit Windows-Yule's research focuses on the recycling of plastic waste, particularly the development of novel, modular plastic recycling systems that will be valuable to low- and middle-income countries without the infrastructure to support more conventional facilities. Through the programme he built a close relationship with host company Recycling Technologies, which has helped him secure considerable additional funding in the field of plastic recycling, including a £440,000 New Investigator Award from the Engineering and Physical Sciences Research Council. He said: "My time as an Industrial Fellow has helped me to 'talk the language of industry', and to understand the interests, wants and needs of companies, which often differ significantly from those of academics and grant funding bodies. Thanks to this improved understanding, I have managed to attract significant industry funding. I am currently involved in funded projects with several industrial partners spanning multiple sectors, including pharmaceutical (AstraZeneca, GlaxoSmithKline) chemical (IFPEN, Johnson Matthey), food (Mondelez), and personal care (Unilever). This industry and grant funding has, in turn, helped me to expand the size of my research group: at the time of my initial Industrial Fellowship, I employed one PhD student and now I employ 19 researchers. I sincerely doubt I would have enjoyed this degree of success without the Academy's funding." In the past year, he also received a Proof of Concept award, which helps our research awardees to explore the viability and commercial potential of a novel and innovative concept. He is in the process of setting up an operating division, with the eventual aim of spinning out a company based on the ideas developed during the award. "The Academy's support has markedly improved my grant income; it has considerably expanded the horizons of my research, allowing me to expand my work into multiple new industrial sectors; and it has provided opportunities for more enterprise-focused research, which I had never previously explored. These grants provide much more than 'just' funding: they provide a support network, a community, and fantastic opportunities to share your work, make new connections and access additional funding."

Cecile Uwimana from Rwanda, an awardee of the Africa Catalyst programme, which aims to strengthen professional engineering institutions in sub-Saharan Africa, said: "As project manager and initiator, I am proud to see the impact that this Africa Catalyst project brought to the Institution of Engineers Rwanda and to the society in general. This programme supported and developed career skills for 210 young graduate engineers needed in the industry, 77% of whom were hired after the internship period."

Through these global sustainable development programmes, including Leaders in Innovation Fellowships and Frontiers symposia, we have awarded more than £1.45 million in grant funding and delivered more than 1,100 hours of expert training and mentoring support, with entrepreneurs going on to raise more than £11 million in follow-on funding as a result of our support. Our alumni have started more than 91 new companies, creating more than 430 new jobs, while 86 engineering entrepreneurs from 19 countries have been able to commercialise their innovations.

Since the COVID-19 pandemic started, all our international events have been online. In March 2022, our first-ever hybrid event for the Frontiers programme took place. Hosted on a bespoke virtual platform with live sessions at Prince Philip House, the symposium welcomed 86 emerging leaders from 22 countries, who took part in a mix of in-person sessions, livestreaming and online interaction. Frontiers symposia bring together the best early- and mid-career researchers, practitioners and innovators to discuss international development themes and address the Sustainable Development Goals. Participants can build transformative networks that tackle global goals and that enhance their careers and future opportunities. Dr Witiya Pittungnapoo, Associate Professor in the Faculty of Architecture at Naresuan University in Thailand, attended a symposium in Brazil in 2018 and is now a Frontiers Champion, bringing together a network of peers focusing on flood resilience for water-based communities. She says: "It's a great opportunity for research about different countries to share practice about Sustainable Development Goals. The Academy has encouraged research around every region to keep going during the pandemic. You cannot work just within your discipline alone to deal with these issues – you need collaboration with multiple disciplines to get different perspectives."

Policy and engagement

Much of our work aims to improve awareness and recognition of the crucial role engineers play and of engineering's impact on lives, both in the UK and internationally.

The National Engineering Policy Centre (NEPC) brings engineering thinking and systems approaches to the heart of policymaking, to create a positive impact for society. We partner with 43 professional engineering organisations that cover the breadth and depth of our profession, and represent the expertise of more than 450,000 engineers, to provide insights, advice, and practical policy recommendations on complex national and global challenges. Since it was established, the NEPC has helped shape critical policy decisions that have made a difference to people's lives and the economy.

In July, we published the *Infection Resilient Environments* report, a review of infection control in the built environment commissioned by Government Chief Scientific Adviser, Sir Patrick Vallance FRS FMedSci. The report was disseminated widely, and discussed with policymakers, industry and at committee inquiries such as the Scottish Parliament COVID-19 Recovery Committee, attracting a significant amount of interest and engagement across government One the report's key recommendations – that good ventilation inside public buildings and on transport systems is essential to reducing the risk of COVID-19 – helped shape the government's public messaging. The Cabinet Office has taken steps to implement the recommendations, improving the ventilation guidance and public information campaigns, and establishing a ventilation Technical Advisory Group with strong engineering representation. The NEPC has followed this work with a deeper exploration of a systems approach to achieving infection resilience across a wider range of buildings.

We have also been an influential voice in encouraging policymakers nationally and internationally to take a systems approach and consider 'low regrets decision-making' to address net zero. In September, we published *Decarbonising construction: building a new*

Influencing policy

April 2021
NEPC | *Late-stage R&D: business perspectives*

May 2021
Engineering X | *Exploring the safety of super-sized structures*
Critical capabilities: strengthening UK resilience

July 2021
NEPC | *Infection Resilient Environments*

September 2021
NEPC | *Decarbonising construction: building a new net zero industry*

November 2021
NEPC | *Rapid low regrets decision-making for net zero policy*

February 2022
Engineering Ethics: Maintaining society's trust in the engineering profession

On This is Engineering Day, our hashtags were seen over 30 million times across Twitter, LinkedIn, Facebook, and Instagram; we achieved a broadcast reach of over four million across key national and regional broadcasters including Channel 4, BBC Radio 4 and regional radio stations; and we secured 17 pieces of print and online coverage including *The Mirror* and *The Scotsman*

net zero industry, which outlined specific actions that need to be taken if the construction sector is to contribute to achieving net zero. And in November, we produced a rapid low regrets decision-making framework for net zero policy, to guide government decisions on tackling carbon emissions across the UK.

We undertook a raft of activity in the run up to – and during – the UN Climate Change Conference, COP26. Our Engineering Zero campaign highlighted and promoted the crucial contribution engineers can make to move us closer to achieving a thriving, low-carbon economy and reaching the net zero future required to stabilise our climate. Our *Getting to net zero* video explainer series was launched as part of the campaign, featuring experts, innovators and entrepreneurs explaining why reaching net zero in time requires a new approach to transforming infrastructure, and how to tackle such a complex and broad challenge. Other activity as part of the campaign included a series of *Ask the Engineers* online panel discussions to engage the STEM- and environment-interested public in debates about some of the issues raised by COP26 from an engineering perspective. Chaired by *Economist* Science Correspondent Alok Jha, speakers from industry, academia and Academy partner organisations discussed questions including 'What should COP26 aim to achieve?' and 'Is hydrogen the silver bullet that will help achieve net zero?'.

This is Engineering Day 2021 was timed to coincide with COP26 and linked into the Engineering Zero programme by showcasing and celebrating how engineers will contribute to a net zero future. We worked with a digital artist to reimagine classic artworks to spark a discussion about what an engineered sustainable future could look like. The reimagined artworks were created with input from expert engineers in the Fellowship and our wider networks, including *This is Engineering* partners and supporters. The University of Strathclyde hosted a physical installation of the paintings in Glasgow throughout COP26 at the Technology and Innovation Centre, with an estimated footfall of 4,000 over the period. They were also featured online in the Museum of Engineering Innovation on Google Arts and Culture, attracting more than 4,500 views during November. Three new *This is Engineering* films were also released in October, featuring Lucy Hughes, an entrepreneur and inventor of MarinaTex, a compostable alternative to plastic film made of fish waste, and George Imafidon, a performance engineer in Sir Lewis Hamilton MBE HonFREng's X44 racing team that races as part of the Extreme E electric racing series.

We also supported events that took place at COP26. A panel of expert speakers discussed Engineering X's work on open burning of waste at an official UN side event – the first time the topic has been raised

The DnaNudge team members with their gold medals

Alongside its use in NHS hospitals, the test is being in used in care homes across the UK © thisisjude.uk 2020

In July, we awarded the MacRobert Award – the UK's longest running and most prestigious prize for innovation in UK engineering – to DnaNudge. The company's pioneering consumer genetics technology was pivoted and adapted to deliver a rapid, lab-free RT-PCR COVID-19 test to NHS hospitals.

In August 2020, the UK government placed a major order with DnaNudge to supply the Department of Health and Social Care with CovidNudge test kits for use in NHS hospitals across the UK. The test can accurately detect the SARS-CoV-2 virus from saliva samples on-site in just over an hour – eliminating the need for a laboratory.

Based in central London at the Imperial College London Translation and Innovation Hub in White City, DnaNudge was created by biomedical engineer and CEO Professor Chris Toumazou FREng FRS and geneticist and CSO Dr Maria Karvela. The winning team also includes Dr Caroline Golden, Clinical Research Manager; Josef Cicinski, UK Retail Store Manager; and David West, COO.

The DnaNudge team was awarded a £50,000 prize and a gold medal at an Awards Celebration at Prince Philip House, the first in-person event since the start of the COVID-19 pandemic. Supported by The Worshipful Company of Engineers, the MacRobert Award recognises winners that deliver outstanding engineering innovation, commercial success and tangible social benefit.

at a high-level forum. Panel members shared their expertise and knowledge on open burning's impact on climate change and global health and highlighted the need for urgent action on this dangerous issue. Climate emissions from open burning of waste are potentially double that of aviation but rarely acknowledged, while health impacts are deadly. In January 2021, Engineering X Safer End of Engineered Life (SEEL) and International Solid Waste Association (ISWA) workshops pointed to open burning as a climate issue. Engineering X then published a report on the related challenges and opportunities in Africa, and we partnered with the United Nations High Level Climate Champions team, funding two Waste Management Leads in Africa, to raise the topic and bring people together to seek solutions. We are now building momentum in the run up to COP27 in Egypt in 2022. SEEL is one of five missions under Engineering X, a partnership between the Academy and Lloyd's Register Foundation to create a global network of expert engineers, academics, policymakers, NGOs, and business leaders across more than 30 countries to address the most pressing global engineering, safety and sustainability challenges. To date, the programme has produced three global reviews, funded more than 30 champions and awarded more than 170 grants.

Climate Change Catastrophe!, a filmed show about climate change funded through our Ingenious public engagement programme, was also presented at COP26. Run by theatre company Cap-a-Pie in collaboration with Newcastle University's School of Engineering, the theatre show focuses on what children think of climate change, and their hopes, fears and ideas for the future. The organisations worked with scientists, engineers and researchers to condense their work into lesson plans and activities. They then sent the resources to participating schools for teachers to introduce to Key Stage 2 students, who were then tasked with creating characters, scripts, scene ideas, and drawings. These were then used by Cap-a-Pie to inspire the content of a theatre show. When schools were closed because of COVID-19, the team instead created a filmed version of the performance based on the children's ideas and shared it with the schools that inspired their work. Ingenious, which supports projects that engage the public with engineers and engineering, has funded over 250 projects to date, providing opportunities for close to 7,000 engineers to take part in public engagement activities, gain skills in communication and showcase the role that engineering plays at the very centre of society. Together, Ingenious projects have reached over 3.2 million members of the public.

In February 2022, the Queen Elizabeth Prize for Engineering Innovation (QEPrize) was awarded to Japan's Dr Masato Sagawa for his pioneering work on the discovery, development and global commercialisation of the sintered Neodymium-Iron-Boron permanent magnet – the world's most powerful permanent magnet, which has been an integral component of clean technologies such as electric vehicles and wind turbines. Dr Sagawa is the first laureate since the prize started to be awarded annually, rather than biennially, a change made to reflect the increasing pace of engineering innovation. Dr Sagawa was announced as the winner of the 2022 QEPrize by Lord Browne of Madingley FREng FRS, Chair of the QEPrize Foundation, via a global livestream hosted by TV presenter Katie Derham, which gained more than 1,300 views, and opened with congratulations from HRH The Princess Royal, the Academy's Royal Fellow. News of the announcement was broadcast across 650 outlets in 25 countries spanning five continents, including Canada, the USA, Germany, Italy, South Korea, India, and Japan. Dr Sagawa will receive £500,000 and a unique trophy, designed by 2022 Create the Trophy competition

The QEPrize *Create the Future* podcast streams in over 130 countries. It has been downloaded more than 8,000 times and entered the 'Top 100 Technology' podcast charts in the UK, Canada, Hong Kong, Thailand, France, and Japan

Anytime, Anywhere, Engineers is an Ingenious-funded project between the National Farmers Union (NFU), agricultural engineers and experienced education practitioners. Online STEM club sessions are recorded and shared online with a wider audience and the project is also running interactive 3D tours, launched at Shrewsbury Food Festival where guests toured facilities at Syngenta, Harper Adams and many more using virtual reality headsets. 1,750 virtual tours have taken place so far, with the project's website getting 5,900 visitors to date. The team is now working on the development of STEM club sessions for secondary school students, which they aim to run at 7.00pm so the whole family can get involved. As project lead Josh Payne, Chief Education Manager at the NFU, says: "We know that parents play a big role in their children's career aspirations, so we want to encourage them to get involved too."

winner Anshika Agarwal, aged 17, from India. The competition received more than 1,000 entries from across 78 countries.

In December, HRH The Prince of Wales presented the 2021 QEPrize during a ceremony at St James's Palace to the 2021 QEPrize laureates: Isamu Akasaki, Shuji Nakamura, Nick Holonyak Jr (awarded in absentia), M George Craford, and Russell Dupuis, who were recognised for the creation and development of LED lighting, which forms the basis of all solid-state lighting technology. The engineers were recognised not only for the global impact of LED and solid-state lighting, but also for the contribution the technology has made, and will continue to make, to reducing energy consumption and addressing climate change. Very sadly Professor Akasaki passed away in April 2021 but was represented at the ceremony by his son-in-law, Dr Kazuaki Takahashi. His Royal Highness presented each winner with a stunning gold trophy, designed by the winner of the 2021 Create the Trophy competition, Hannah Goldsmith, who also attended the ceremony.

People and operations

Our credibility as a charity, National Academy and Fellowship with a mission to deliver public benefit from engineering excellence and technology innovation is underpinned by our ability to deliver.

Our staff are at the core of making this happen. The Academy has grown significantly over the past year: since March 2021, we have recruited 58 new members of staff, bringing our total number to 154. This has included the creation of 28 new posts to expand under-resourced and strategic priority areas. Our HR team, led by the Academy's first Director of People, Sharon Noble, has led the development of our first people strategy, in consultation with all staff, to embed the Academy's values, provide a positive employee experience, and build on what currently works to help us deliver our overall strategy and our charitable objectives. Wellbeing is a central pillar of the strategy and, as the COVID-19 pandemic and the limitations it imposed on our day-to-day lives continue to recede, the Academy has adopted a hybrid working model that allows staff to work flexibly and structure their working day in a way that suits them.

Our Environmental Sustainability Action Group continues to ensure that the Academy improves its environmental performance. This year we worked with Planet Mark to commission a carbon baseline for the financial year 2019 to 2020, which will give us a goal to work towards in reducing our carbon footprint. Planet Mark is an organisation that offers a certification based on leading international standards and has many other charitable clients such as the Eden Project and the Institute of Directors. After a series of discussions with leading engineering organisations such as Arup and Atkins, and similar bodies such as the other National Academies, royal colleges and the Institute of Physics, we decided to begin this baseline with 2019 to 2020 to understand our footprint pre-pandemic. This has now been received and will shortly be published, showing that during that period we had a carbon footprint of 1,323 tonnes of carbon, which is 10.7 tonnes per employee – equivalent to 1,170 flights from London to New York. We are now starting work to: understand how this compares with other equivalent organisations; compare it to 2020/2021 and 2021/2022; and increase the amount of scope 3 measures (indirect emissions such as international travel) included in future reports. All this information will help the Academy's

In the last year, the Academy secured £3,386,980 in new funding commitments for its programmes from industry, charitable trusts and individual donors

The Princess Royal Silver Medal

Trustee Board and senior leadership team make decisions on our next steps and operationalising our continued commitment to reduction.

So far, the group has also actioned several changes at Prince Philip House including improving the sustainability of consumables such as coffee, enabling oil from the kitchens to be turned into biofuel, and updating key policies such as the procurement policy to embed principles of reduce, reuse, recycle. We have also been exchanging information, ideas and experiences with peer organisations to inform our approach.

At the end of 2021, we announced that we would rename two of our most prestigious awards as part of our commitment to reflect the modern engineering landscape and celebrate the diverse range of engineers who are helping to tackle some of the world's most pressing challenges. Our Royal Fellow, HRH The Princess Royal, has generously allowed us to rename the Silver Medal, which celebrates outstanding personal contribution to UK engineering by an early- to mid-career engineer resulting in market exploitation, as The Princess Royal Silver Medal. This is to honour Her Royal Highness's outstanding contributions as a Royal Fellow, as an exceptional champion for engineering more broadly, and as a vocal and longstanding supporter of women in engineering and science. The Major Project Award has been repurposed to align directly with the Academy's strategic goal on sustainability and will now be known as the Major Project Award for Sustainability. It will recognise the contribution of a team of up to five UK-based engineers who have delivered a major engineering project that has had a substantial impact on creating a more sustainable society.

In 2020, the Trustee Board initiated a Governance Review. The Review Group, chaired by Professor Iain Gray CBE FREng FRSE (former Vice President of the Academy) and comprising eight Fellows and one non-Fellow (who was subsequently elected a Fellow), reviewed aspects of the Academy's governance under a scope determined by the Trustee Board. The overall purpose of the review was to ensure that the Academy's governance provides a framework within which the Academy Trustees effectively govern the Academy towards the achievement of its charitable objects.

The Review Group consulted widely in formulating its recommendations, with Fellows and across Academy committee members, with Trustees, and with Academy staff. The Group received formal, legal advice from charity law specialists Womble Bond Dickerson (WBD) and considered wider trends in charity governance good practice.

The Review Group delivered its findings and recommendations to the Trustee Board in May 2021, making 12 recommendations across the nine items in the scope. The Board accepted these recommendations unanimously and they were

presented to the Fellowship at a briefing during the Academy's AGM in September 2021.

Several of the recommendations were acted on immediately without requiring any changes to regulations. However, a small number of recommendations required changes to the Academy's Charter, Statutes and Regulations, the formal governing document of the Academy.

On 21 March 2022, an Extraordinary General Meeting (EGM) was held at which Fellows were asked to vote by Special Resolution in favour, or against, the amended Charter, Statutes and General Regulations. There were three resolutions at the EGM, each to endorse changes to the i) Charter, ii) Statutes and iii) General Regulations respectively:

- The small amendments to the Academy Charter were required to remove outdated references and to remove the specific reference to HRH The Duke of Edinburgh as the Senior Fellow.
- The several changes to the Statutes were required to remove the formal limits to the numbers of International and Honorary Fellows, to clarify the status of Emeritus Fellows, and to update other items to reflect established practice.
- There were also some changes to the General Regulations, which are there to permit the election of Vice Presidents by the same process as has been established for governance committee chairs.

Fellows overwhelmingly voted in favour of the resolutions, with over 98% voting in favour of the amendments.

In October 2012, our late Senior Fellow, HRH The Prince Philip, met with students from Lambeth College, who were undertaking engineering projects, at the reopening and naming of Prince Philip House.

£96,000 has been raised in response to our fundraising appeals thanks to the generous support of 105 donors, 22 of whom are new. For the first time, the donors include members of our awardee community. As well as the Academy's 2021 Annual President's Appeal, we also received donations following the publication of our first donor report, *Impact of Giving*, in September 2021 and in response to the Prince Philip Fund, launched in June 2021.

Future plans

As set out in our five-year strategy, launched in March 2020, the Academy's overarching goal is to **harness the power of engineering to build a sustainable society and an inclusive economy that works for everyone**.

We work in three ways to address these goals: **fostering talent and diversity, promoting innovation, and influencing policy and public perceptions**. In keeping with our values, many of these goals will be delivered through active collaboration with key partners around the world, across and beyond engineering. The annual report details the significant progress made against these actions over the 2021/22 financial year. We aim to accelerate progress against these actions over the following year.

Over the next three years, we are working towards six key strategic goals (SGs):

Strand	Building a sustainable society	Building an inclusive society
Talent and diversity 	**SG1** Engineers are influential agents of change in the drive for a more sustainable society, providing leadership both within and beyond the UK.	**SG2** The UK has a world-leading and truly inclusive engineering workforce that sets the highest standard for technical excellence, ethics and professionalism.
Innovation 	**SG3** More and better engineering and technology solutions are being developed and deployed to support faster decarbonisation and more sustainable use of resources.	**SG4** Engineering innovation and enterprise is improving productivity, competitiveness, public health, safety, and security while delivering economic and social value for people from all parts of the UK.
Policy and engagement 	**SG5** Engineering expertise is consistently being used to inform and improve government policy on sustainability.	**SG6** Policymakers and the public recognise the value of engineering, allowing it to thrive and contribute to a resilient UK economy that works for all.

TALENT AND DIVERSITY

Sustainable society (SG1)

In 2022–23 we will deliver on our Strategy commitments by:

- scaling up the delivery of our **Regional Talent Engine programme** to four regions
- introducing pilot **mandatory training** in Progressive Leadership for a Sustainable Society and Inclusive Economy **for Talent and Diversity awardees**.
- awarding our new, flagship team-based award focused on sustainability: **the Major Project Award for Sustainability**
- establishing a new cross-Academy **Future Engineer 2030** programme to shape thinking and practice on the skills needs of future engineers and technicians
- launching a **Progressive Engineering Leadership Charter for PEIs** and the professional engineering community, covering sustainability, D&I and ethics.

Inclusive economy (SG2)

In 2022–23 we will deliver on our Strategy commitments by:

- establishing a **new offer for vocational education**, supporting higher-level technician training, T-level resources and framework for T-level industry placements
- **expanding our footprint of regional support** through Research Talent Engines, regional STEM engagement, Enterprise Hub regional centres, and Awardee Excellence Community and Fellowship engagement activities
- driving culture change in engineering through launching **Inclusive Leaders Fellowships**, piloting the **SME D&I Toolkit** and convening D&I discussion meetings across the international network of engineering academies
- **accelerating the pan-profession ethics programme**, including publishing an ethics audit, and piloting training for students and early-career engineers.

INNOVATION

Sustainable society (SG3)

In 2022–23 we will deliver on our Strategy commitments by:

- developing a **key sustainability indicators playbook** and a **suite of end of engineered life challenges training courses** to be used by Enterprise Hub members
- developing **two new international collaborations on sustainable society**, and **three partnerships** with international academies with a focus on innovation in sustainability
- delivering an Engineering X initiative on **innovative approaches to end of life for offshore wind**.

Inclusive economy (SG4)

In 2022–23 we will deliver on our Strategy commitments by:

- **launching the Engineering Inclusive Outcomes** initiative
- establishing the **Ada Breakthrough Award** with partners to identify and celebrate overlooked talent
- completing a **Global Review of Engineering Pandemic Preparedness** and facilitating discussion with senior global stakeholders
- **launching Engineering NeXt** as a tool to equip future engineers with the skills to solve complex global problems.

POLICY AND ENGAGEMENT

Sustainable society (SG5)

In 2022–23 we will deliver on our Strategy commitments by:

- launching a new programme on **Futureproofing Innovation for Net Zero**
- deploying a successor to the Engineering Zero programme including the next phase of the **NEPC net zero programme**
- **delivering a programme on government capability in systems approaches**, including GEEP 4 Government pilot to increase recruitment of engineers into government.

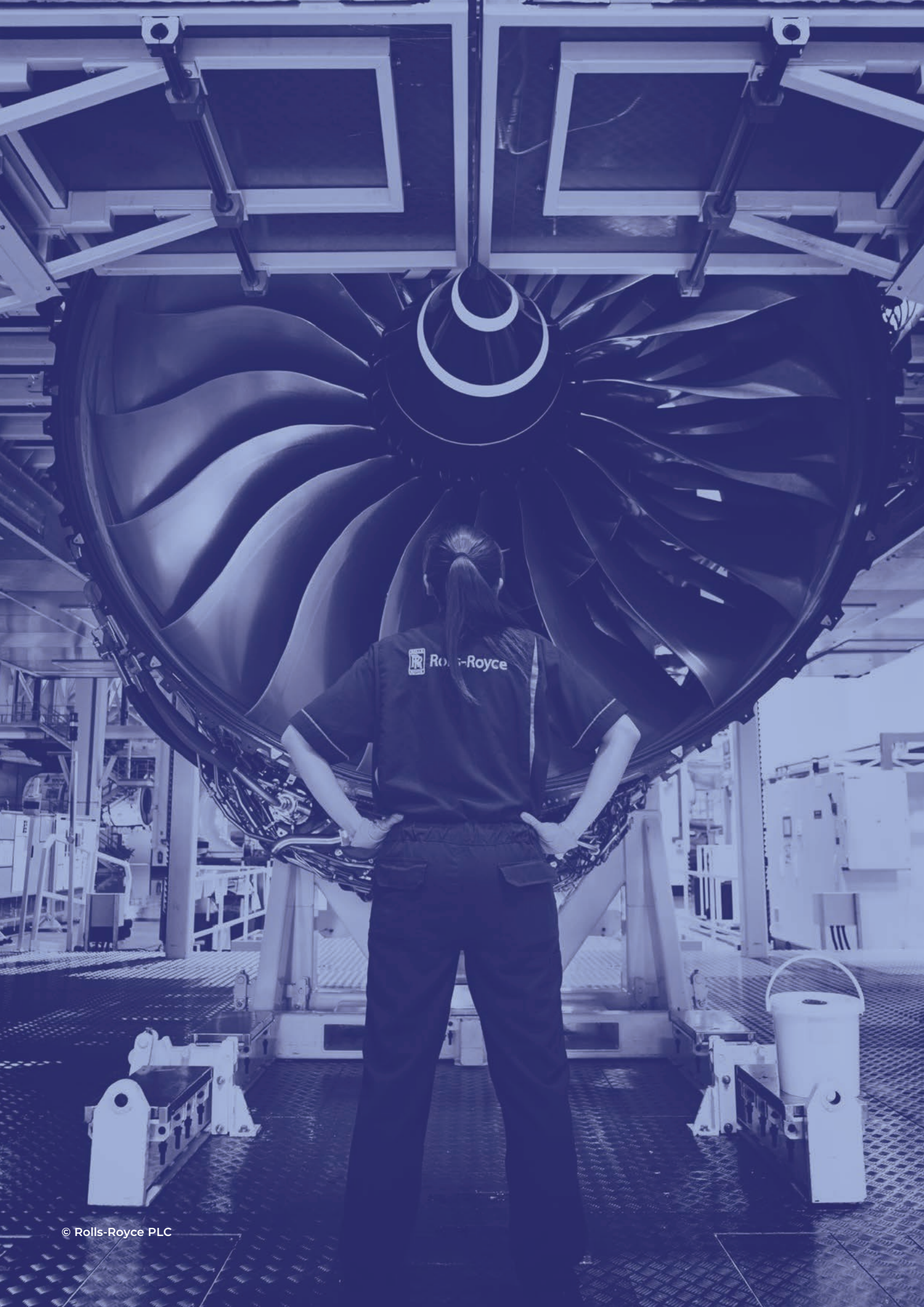
Inclusive economy (SG6)

In 2022–23 we will deliver on our Strategy commitments by:

- developing a programme of work on **Strategic Advantage through science and technology**, with UK and international relevance, which will include workshops, policy outputs and international collaboration
- launching an **NEPC Engineering, Resilience and Public Health** policy programme.

To enable this delivery, we will also:

- launch a new Academy **website** including a redeveloped Fellows area
- develop an integrated **awardee network** and community for awardees past and present
- launch a major **development campaign** to grow our philanthropic income and funding capability.



Report of Trustee Board

Financial Review

Results for the year

The Academy has produced group accounts for the year, having consolidated its accounts with those of its two subsidiaries: the Queen Elizabeth Prize for Engineering Foundation (QEPF) and RAE Trading Limited. The annual report, incorporating the financial statements for the year ended 31 March 2022, has been prepared in accordance with the Academy's Royal Charter, and in compliance with Accounting and Reporting by Charities: Statement of Recommended Practice 2019, applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102) (effective 1 January 2019) – (Charities SORP (FRS102)), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102). The Academy meets the definition of public benefit entity under FRS102. These financial statements are prepared under FRS102.

Group income for the year was £48.3 million (2020/21 £51.2 million). During the year, income from grants and other contracts totalled £45.6 million (2020/21 £49.0 million). Donations totalled £0.7 million (2020/21 £0.5 million), of which £0.2 million was to the QEPF. Other major sources of income during the year were: investments, subscriptions, events, and facilities hire income at a total of £2.0 million compared to £1.7 million in the previous year.

Group expenditure on charitable activities was £47.5 million (2020/21 £53.4 million): 97% of total resources expended. Of this total, £42.9 million represented charitable activities and grants paid under various programmes and £4.7 million represented the costs of operating those programmes.

The cost of generating funds across the group was £1.3 million: 3% of total resources expended. The cost of generating funds consists of fees paid to investment managers, facilities hire and catering, and the staff costs and expenses associated with fundraising. The Academy is continuing with major fundraising activity aimed at obtaining funds for the enhancement and expansion of the Academy's programmes to support talent and diversity, innovation, and policy and engagement, as well as central infrastructure.

Royal Academy of Engineering

Total income for the year was £47.2 million (2020/21 £50.3 million). The Academy is grateful to the Department for Business, Energy and Industrial Strategy (BEIS) for providing the government core grant to support activities aimed primarily at promoting engineering research in the UK. The core grant at £19.7 million (2020/21 £13.8 million) represented 41% of total group incoming resources.

Income from other grants and contracts decreased by 26% to £25.9 million. Included in this amount were grants received from BEIS of £13.3 million from the Investment in Research Talent fund, £3.0 million from the Global Challenges Research Fund and £1.7 million from the Newton Fund programme.

Expenditure on charitable activities was £46.2 million compared to £51.6 million in the previous year. An analysis based upon the principal objective of each activity shows that, of the total charitable expenditure of £46.2 million: 73% was on innovation; 13% on policy and engagement; and 14% on talent and diversity. Employment costs increased from the previous year by 10% to £8.2 million to ensure that the resourcing of direct operational and enabling support functions were at the level required to execute delivery plans in relation to 2021/22 funding.

Queen Elizabeth Prize for Engineering Foundation

Total income for the year was £0.8 million (2020/21 £0.8 million). Expenditure on charitable activities was £1.3 million compared to £1.8 million the previous year. The Queen Elizabeth Prize for Engineering has moved from a biennial to an annual cycle. The Foundation pays a management fee to the Academy for services, which includes staff employed and office space.

RAE Trading Limited

The commercial activity undertaken by the company during the year was the provision of rooms and catering services within Prince Philip House, primarily to corporate customers. Catering services are also provided to the Academy at cost. Revenue for the year was £0.5 million (2020/21 £21,000). Operating expenditure, including the cost of providing a service to the Academy, was £0.4 million (2020/21 £173,000). The net profit for the year was £92,000 compared to a net loss of £152,000 in the previous year.

Group asset value

The carrying value of the group's net assets was £70.7 million (2020/21 £68.4 million). Investments were valued at £53.7 million, with the Academy holding £27.5 million and QEPF holding £26.2 million. Tangible fixed assets valued at £24.6 million included the £11.0 million value of the Carlton House Terrace lease and the £12.6 million of leasehold improvements to Prince Philip House. The main liability was a bank loan of £11.5 million, which funded the extension of the Academy's property lease secured in 2017. The loan also funded part of the lower ground floor extension and settled the previous loan with NatWest.

Fixed assets

Capital expenditure during the year amounted to £0.4 million, which was on computer systems and equipment, office fixtures and fittings, and leasehold improvement.

Investments

The value of the Academy's investment portfolio increased over the year by £0.8 million to £27.5 million. Realised and unrealised investment gains during the year were £0.9 million. 70% of the Academy's investment portfolio is held in global equities and 30% is held in fixed interest bonds and asset backed and alternative investments. Income to the Academy from dividends decreased by 24% during the year to £488,000. Group investment income decreased by £164,000 to £1.0 million, of which £562,000 was income from QEPF's investments, which are managed separately to those of the Academy.

The Academy's investments are held in a managed investment fund and index funds. QEPF's investments are held in a managed investments fund. The Academy has adopted the following sustainable principles within its investment policy:

1. The Academy's assets should be invested in line with its aims.

2. The Academy aims for the best possible financial return from its investments. However, the Academy understands the importance of sustainable investing practices that are compliant with the United Nations Principles of Responsible Investments (UN PRI). The Trustees believe that the two considerations are not contradictory and that sustainable investing principles should not lead to lower return expectations over the long term.

3. The Academy's charitable object is the pursuit, encouragement and maintenance of excellence in the whole field of engineering to useful purpose. The Trustees conclude that a blanket exclusionary policy on certain sectors, as followed by many institutional investors, is not appropriate for the Academy.

4. The Academy requires its fund managers to pay appropriate regard to relevant corporate governance, social, ethical, and environmental considerations in the selection, retention and realisation of all fund investments. The Academy requires all investment managers to be signatories to UN PRI.

5. These principles will be reviewed on a regular basis to ensure that they are in-sync with the broader ethical and sustainability policies of the Academy.

Reserves policy

The Academy's intention is to maintain sufficient reserves to ensure financial resilience and sustainability, including protection against risks identified in the risk register. The reserves policy sets out the target reserves level and the key principles by which the Academy will manage any excesses or deficits compared to the target. The aim is to strike the appropriate balance between ensuring a sustainable financial position and using funds to fulfil the charitable objectives of the Academy and deliver public benefit. The reserves policy is reviewed regularly.

Year ended 31 March	**2022 £000**	**2021 £000**
Total funds as per group balance sheet	70,664	68,411
Exclude:		
Restricted funds	38,168	36,326
Unrestricted funds tied up in tangible fixed assets	24,628	24,836
Designated and special funds	3,724	3,198
Free reserves	**4,144**	**4,051**

Free Reserves

Free Reserves are available to be spent for any purpose that meets the Academy's charitable objectives. Free Reserves would cover a short-term emergency or longer term structural change. The reserves policy states that the recommended range for Free Reserves is £3.0 million to £4.5 million. Whenever the Academy's Free Reserves fall below the recommended range, the intention is to build the level of Free Reserves to be within the recommended range within five years.

Designated Funds

A strategic development fund of £2.8 million is available to deliver impactful charitable activities over the next five years and/or strengthen the Academy for the longer term and fund non-recurring costs of major projects without impacting annual operating budgets.

Capital building fund

Within restricted and designated funds there is a fund of £2.7 million to cover major capital improvements to Prince Philip House.

QEPF Trustees consider the level of the Foundation's reserves as part of their risk assessment review process. These reserves are restricted within the group balance sheet. There are no reserves held by RAE Trading Limited as all profit arising is gift aided to the Academy.

The specific uses and needs of the restricted and designated funds held by the Academy are detailed separately in the notes to the accounts referred to above.

The Academy's reserves are available and adequate to fulfil the current obligations of the Academy.

Investment policy

The Trustees' general powers of investment derive from and are restricted by the Trustee Act 2000. These powers are not restricted by the Academy's Royal Charter, which states that "the Board may invest any monies of the Academy not immediately required for the purposes of the Academy". The investment objective is to generate a total return of inflation (Consumer Price Index) plus 4% per annum over the long term, after expenses. This will allow the Academy to maintain the real value of the assets, while funding annual expenditure at the level generally not exceeding 4% per annum.

The funds have been invested in a diversified portfolio of assets. The core of the portfolio has been invested in the income and return generating assets. Asset classes include domestic and international equities, fixed income instruments, property, commodities, cash, and any other assets deemed suitable for the Academy.

Risk management and appetite

The Trustees have agreed a risk appetite statement and associated risk management policy. The Audit and Risk Committee reviews the risk register four times a year. The Chair of the Audit and Risk Committee provides updates to the Trustee Board. Risk management is supported by the work of the Audit and Risk Committee as well as various operating committees. The Academy's overall approach to risk is illustrated by the following table:

Risk appetite table

	Zero	Very low	Low	Some	Acceptance
Health, safety and security	✓				
Safeguarding	✓				
Compliance and governance	✓				
Data protection and cybersecurity	✓				
Reputation	✓				
IT infrastructure and development		✓			
People and culture		✓			
Financial			✓		
Programme delivery			✓		
Environment and sustainability			✓		
Impact				✓	
Programme innovation					✓

See table below for description of risk appetite classification

Risk appetite classification

Zero	Avoidance of risk and uncertainty (aspiration even though difficult to achieve).
Very low	Preference for very safe options that have a low degree of inherent risk.
Low	Preference for safe options that have a low degree of residual risk.
Some	Willing to consider all potential options and choose one that is most likely to result in successful delivery, despite the potential for some degree of risk.
Acceptance	Eager to innovate and to choose options offering potentially higher reward, despite greater inherent risk.

The most significant risks currently faced by the Academy and mitigating actions are shown in the table below.

Trading conditions or market forces cause decline in levels of Gift Aid profits from the Academy trading subsidiary leading to threat to financial sustainability.	There has been a significant recovery in trading performance over 2021/22 after near zero sales in 2020/21. Trading performance is closely monitored by senior staff and Finance Committee.
Inability to secure funding at scale and timing needed, causing financial shortfall leading to threat to financial sustainability and/or inability to deliver programmes and activities required for successful implementation of the strategy.	Programme activities are implemented only when sufficient funding is in place and/or can be scaled based on funding available. Confidence in current fundraising activity is based on track record, quality of proposition and competitive position. A cultivation and stewardship programme is in place. A financial strategy is in place that sets out the purpose and appropriate levels of reserves.
Cyber attack causes failure or compromise of IT systems and/or data leading to reduced ability to operate and/or reputational/financial damage.	Up-to-date technology and methodologies including third-party daily monitoring, malware protection, regular patching on laptops and servers, and email and web filtering. Encryption on laptops and VPN, and two-factor authentication is required when using Academy laptops and/or other services remotely. Risks addressed following annual penetration testing. Specific mitigation solution in place against distributed denial of service attacks.

Recipients of Academy grants

The Academy made over 1,000 grants and awards to organisations and individuals in 2021/22 totalling £31.2 million. The first 25 organisations, in order of total amount of funds paid to recipients, are listed below.

		Innovation	Policy and engagement	Talent and diversity	Total amount in £
1	Imperial College London	2,929,380	–	91,988	3,021,368
2	University College London	2,365,099	68,111	42,532	2,475,742
3	University of Southampton	2,026,707	–	74,956	2,101,663
4	University of Glasgow	1,862,961	6,764	21,226	1,890,951
5	University of Oxford	1,304,320	–	500	1,304,820
6	University of Bristol	1,254,406	21,325	4,300	1,280,031
7	University of Newcastle	911,565	7,600	117,492	1,036,657
8	University of Manchester	1,004,350	2,818	1,777	1,008,945
9	University of Strathclyde	795,012	–	96,116	891,128
10	University of Nottingham	790,207	–	8,075	798,282
11	University of Sheffield	644,576	17,865	101,457	763,898
12	Heriot-Watt University	656,825	10,966	28,782	696,573
13	Queen's University Belfast	579,938	7,230	8,200	595,368
14	University of Cambridge	513,476	–	20,500	533,976
15	University of Leeds	491,935	11,988	9,462	513,385
16	University of Liverpool	498,479	10,966	–	509,445
17	Loughborough University	348,159	8,925	57,475	414,559
18	King's College London	322,500	–	77,106	399,606
19	University of South Wales	390,500	–	500	391,000
20	University of Exeter	387,437	–	–	387,437
21	University of Warwick	298,942	–	65,589	364,531
22	University of Birmingham	342,943	2,827	16,500	362,270
23	University of Edinburgh	337,743	7,861	488	346,092
24	City, University of London	311,028	–	8,000	319,028
25	University of Bath	244,095	36,195	500	280,790
Total		**21,612,583**	**221,441**	**853,521**	**22,687,545**

Structure, governance and management

Election to the Trustee Board

Trustee Board members are elected for a term of three years with the exception of the President who is elected for a term of up to five years. With the exception of the President, Trustees are eligible for re-election for a further three-year term. The Trustee election is by a ballot of Fellows each year. The Nominations Committee helps to ensure that there is an appropriate candidate slate for election to the Trustee Board and the associated governance roles.

Induction and training of Trustee Board members

Following election, Trustees are provided with an information pack comprising the Academy's Charter, Statutes and Regulations, a Charity Commission publication on the responsibilities of charity trustees and the Academy strategy. Trustee Board members receive a full induction briefing from senior staff and the Academy's legal advisor and are encouraged to attend recommended external training courses for charity trustees.

Charity Governance Code

The Trustees have undertaken a review of current Academy practice mapped against the recommended practice of the Charity Governance Code. The vast majority of Academy practices correspond with the recommended practices set out in the Code. A Governance Review was conducted beginning in 2020/21 and adopted in 2021/22 following an Extraordinary General Meeting.

Code of Conduct

A Code of Conduct is in place to cover the conduct and ethical behaviour expected of Fellows of the Royal Academy of Engineering. Fellows are ambassadors for the Academy and should therefore conduct themselves in a manner that supports the Academy's aims and that upholds and enhances the reputation of the Academy and its Fellows. Fellows are expected to follow the Nolan principles of selflessness, integrity, objectivity, accountability, openness, honesty, and leadership. Fellows who are working for or on behalf of the Academy must act in accordance with Academy policies on conduct and behaviour covering items such as conflicts of interest, equality, diversity and inclusion, anti-bullying and harassment, and anti-bribery. The Conduct Committee, chaired by the Vice-President for Committee Coordination, has been established to oversee the Code and its implementation.

Public benefit

Fellows are not remunerated for serving as Trustees. The Trustee Board has complied with its duty to have due regard to the Charity Commission's public benefit guidance when exercising any powers or duties to which that guidance is relevant. Information about public benefit provided by the Academy is presented in this report.

Internal control

Finance Committee

The Finance Committee is mandated by and reports to the Trustee Board on the following issues:

- Setting a budget prior to each financial year for approval by the Trustee Board.
- Appointing and monitoring the performance of independent investment advisers.
- Approving authorised signatories and setting limits on delegated financial authorities.
- Monitoring financial performance against budget.
- Reviewing the reserves policy annually.
- Ensuring that accounting rules are followed.

Detailed management accounts are prepared monthly within 10 working days of the month end and submitted six times a year to the Finance Committee. Summarised accounts are submitted at each Trustee Board meeting.

The Finance Committee meets at least six times during each financial year. Included in the items considered by the Committee during the year were the Academy's investment strategy and the performance of RAE Trading Limited.

The investment Sub-Committee supports the Finance Committee providing strategic direction and oversight of the Royal Academy of Engineering's investment assets. The committee is established to determine, implement and review an investment strategy to deliver the organisation's agreed investment objectives in line with the Investment policy approved by the Academy's Finance Committee and Trustee Board. The long-term performance of the investment portfolio is monitored against the investment objectives.

Audit and Risk Committee

The Audit and Risk Committee is mandated by and reports to the Trustee Board on the following issues:

- The effectiveness and development of the Academy's risk management policy and processes and compliance with these.
- The review of the Academy's main risks and their management, particularly strategic risks and control processes concerns, and assessment of the level of assurance on the controls in place.
- The audit and review of the Academy's activities, assessing compliance with and effectiveness of controls, policies and processes.

- The review of significant projects, programmes and other activities to ensure that suitable contracts are in place and that the financial, operational and risk management is appropriate.
- Recommendations on the appointment, reappointment and removal of the external auditors.
- The review of the external auditor's findings and in particular any problems, reservations and observations arising during the audit.

The Audit and Risk Committee meets at least four times during each financial year. Included in the items considered by the Committee during the year were the review of the external audit findings, a review of the risk appetite statement, a review of the development programme, and a cybersecurity review.

Fundraising statement

Section 162a of the Charities Act 2011 requires charities to make a statement regarding fundraising activities. Although the Academy does not undertake widespread fundraising from the general public, the legislation defines fundraising as "soliciting or otherwise procuring money or other property for charitable purposes". Such amounts receivable are presented in the Academy's accounts as 'voluntary income' and include legacies and grants. The day-to-day management of all income generation is delegated to the senior leadership team, who are accountable to the Trustees.

The charity adheres to the Institute of Fundraising Code of Fundraising Practice, which outlines standards expected of all charitable fundraising organisations in the UK.

The Academy has received no complaints in relation to fundraising activities. Its terms of employment require staff to behave reasonably at all times.

Grant-making policy

The grant and award programmes are run by committees or steering groups of Fellows of the Academy, and where appropriate other experts, chosen based on their experience and expertise. Fellows of the Academy offer their time freely; no remuneration was paid in the year beyond the reimbursement of reasonable expenses. There is a policy of strict impartiality and no Fellow may participate in a group/award decision if there is a conflict of interest. The role of Academy staff is one of administration of programmes.

Grant awardees are issued with agreements and progress is monitored and recorded utilising a grant management system.

Remuneration policy

The Academy's policy is to pay staff salaries at the market mid-point. Salaries are reviewed in alternate years following a market benchmarking exercise conducted by an independent consultancy. The last independent review was undertaken during 2021 to inform the salary review implemented with effect from 1 April 2022.

The remuneration of the Chief Executive and directors is set annually by the Remuneration Committee. In setting appropriate levels of senior management pay, the Remuneration Committee considered the skills, experience and competencies required for each role, and the remuneration level for those roles in sectors where suitable candidates would be found.

Senior leadership team

Day-to-day management of the Academy is the responsibility of the Chief Executive who, with the directors, comprise the senior leadership team listed below, which meets weekly. Strategy is set by the Trustee Board, and implemented by the senior leadership team, with oversight provided by Academy committees.

The directors who served during the period of the report are as follows:

Chief Executive | Dr Hayaatun Sillem CBE

Chief Operating Officer | Chris Boyle

Director, Development | Samantha Bagchi

Director, Programmes | Dr Andrew Clark

Director, Engineering and Education | Dr Rhys Morgan

Director, Policy | Dr Nick Starkey

Director, Communications and Engagement | Joanna Trigg

Director, Enterprise and Sustainable Development | Ana Avaliani

Director, Finance | Burnham Quail

Director, People | Sharon Noble-Ovenell (appointed 04/05/2021)

Trustees' responsibilities

The Trustees are responsible for preparing the Annual Report and the financial statements in accordance with applicable law and regulations.

Charity law requires the Trustees to prepare financial statements for each financial year in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable law). Under charity law the Trustees must not approve the

financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the group and charity and of the incoming resources and application of resources, including the income and expenditure, of the group for that period.

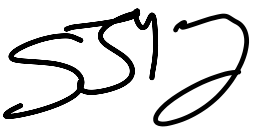
In preparing these financial statements, the Trustees are required to:

- select suitable accounting policies and then apply them consistently
- make judgements and accounting estimates that are reasonable and prudent
- state whether applicable UK Accounting Standards have been followed, subject to any material departures disclosed and explained in the financial statements
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charity will continue in business.

The Trustees are responsible for keeping adequate accounting records that are sufficient to show and explain the charity's transactions and disclose with reasonable accuracy at any time the financial position of the charity and enable them to ensure that the financial statements comply with the Charities Act 2011. They are also responsible for safeguarding the assets of the charity and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Signed on behalf of the Trustee Board on 17 August 2022

Professor Sir Jim McDonald FREng FRSE
President



Professor Stephen Young CBE FREng FRS
Chair of the Finance Committee

Independent auditor's report to Trustees of the Royal Academy of Engineering

Opinion on the financial statements

In our opinion, the financial statements:

- give a true and fair view of the state of the Group's and of the Parent Charity's affairs as at 31 March 2022 and of the Group's incoming resources and application of resources for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Charities Act 2011.

We have audited the financial statements of Royal Academy of Engineering ("the Parent Charity") and its subsidiary ("the Group") for the year ended 31 March 2022 which comprise the consolidated statement of financial activities, the group and charity balance sheets, the consolidated cash flow statement and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

Opinion on other matter as required by BEIS grant letters

In our opinion, in all material respects, the grant payments received from the Department for Business, Energy, and Industrial Strategy (BEIS) have been applied for the purposes set out in the Grant Letters and in accordance with the terms and conditions of the agreements.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remain independent of the Group and the Parent Charity in accordance with the ethical requirements relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have

fulfilled our other ethical responsibilities in accordance with these requirements.

Conclusions related to going concern

In auditing the financial statements, we have concluded that the Trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Group and the Parent Charity's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the Trustees with respect to going concern are described in the relevant sections of this report.

Other information

The Trustees are responsible for the other information. The other information comprises the information included in the Annual Report, other than the financial statements and our auditor's report thereon. The other information comprises: Foreword, Honouring our senior Fellow, How we deliver impact, Highlights from the past year, UK funding map, Global funding map, Talent and diversity, Innovation, Policy and engagement, People and operations, Future plans, Report of Trustee Board, Structure, governance and management.

Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters in relation to which the Charities Act 2011 us to report to you if, in our opinion:

- the information contained in the financial statements is inconsistent in any material respect with the Trustees' Annual Report; or
- adequate accounting records have not been kept by the Parent Charity; or
- the Parent Charity financial statements are not in agreement with the accounting records and returns; or
- we have not received all the information and explanations we require for our audit.

Responsibilities of Trustees

As explained more fully in the Trustees' responsibilities statement, the Trustees are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the Group's and the Parent Charity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the Group or the parent Charity or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

We have been appointed as auditor under section 144 of the Charities Act 2011 and report in accordance with the Act and relevant regulations made or having effect thereunder.

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Extent to which the audit was capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect

of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below:

Based on our understanding of the group and charity and the sector in which it operates, we identified that the principal laws and regulations that directly affect the financial statements to be relevant charities acts in the UK and Ireland. We assessed the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items.

In addition, the group and charity are subject to many other laws and regulations where the consequences of non-compliance could have a material effect on amounts or disclosures in the financial statements, for instance through the imposition of fines or litigation.

In order to help identify instances of non-compliance with other laws and regulations that may have a material effect on the financial statements, we made enquiries of management and those charged with Governance about whether the entity is in compliance with such laws and regulations and we inspected any relevant regulatory and legal correspondence.

Audit procedures performed by the engagement team included:

- We agreed the financial statement disclosures to applicable legislation;
- We determined that the most significant laws and regulations which are directly relevant to specific assertions in the financial statements are those related to the financial reporting framework including but not limited to United Kingdom Generally Accepted Accounting Practice and the Charities Act 2011, Statement of Recommended Practice for Accounting Reporting by Charities (SORP FRS 102);
- We confirmed from management that there were no serious incidents reported to the Charity Commission in the year under review. We also confirmed that there was one ongoing litigation or claims;
- We understood how the charity is complying with those legal and regulatory frameworks that are significant to their activities by making enquiries to management and those responsible for legal and compliance procedures. We corroborated our enquiries through our review of minutes;
- Challenging assumptions made by management in their significant accounting estimates in particular investment valuation and cash flow forecasts used in going concern assessments;
- In addressing the risk of fraud through management override of controls; testing the appropriateness of journal entries and other adjustments; testing the application of cut off and revenue recognition, particularly around all revenue streams, and evaluating the business rationale of any significant transactions that are unusual or outside the normal course of business; and
- Performed audit procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud.

Our audit procedures were designed to respond to risks of material misstatement in the financial statements, recognising that the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery, misrepresentations or through collusion. There are inherent limitations in the audit procedures performed and the further removed non-compliance with laws and regulations is from the events and transactions reflected in the financial statements, the less likely we are to become aware of it.

A further description of our responsibilities for the audit of the financial statements is located at the Financial Reporting Council's ("FRC's") website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Use of our report

This report is made solely to the Charity's trustees, as a body, in accordance with the Charities Act 2011 Our audit work has been undertaken so that we might state to the Charity's trustees those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Charity and the Charity's trustees as a body, for our audit work, for this report, or for the opinions we have formed.

DocuSigned by:
BDO LLP
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BDO LLP, Statutory auditor
London, UK

Date: 18 August 2022

BDO LLP is a limited liability partnership registered in England and Wales (with registered number OC305127).

Consolidated statement of financial activities

Year ended 31 March 2022	Notes	Unrestricted funds 2022	Restricted funds 2022	Total 31 March 2022	Unrestricted funds 2021	Restricted funds 2021	Total 31 March 2021
		£	£	£	£	£	£
Income from:							
Charitable activities	2, 3, 4	–	45,639,341	45,639,341	–	49,017,668	49,017,668
Donations and legacies	5	99,813	559,955	659,768	69,523	463,046	532,569
Other trading activities	6a	924,392	–	924,392	444,410	–	444,410
Investments	6	457,015	593,587	1,050,602	604,932	612,254	1,217,186
Total income		**1,481,220**	**46,792,883**	**48,274,103**	**1,118,865**	**50,092,968**	**51,211,833**
Expenditure on:							
Raising funds		1,099,835	189,311	1,289,146	834,125	194,277	1,028,402
Charitable activities	7	1,423,251	46,100,598	47,523,849	1,666,483	51,734,943	53,401,426
Other	8	29,517	3,675	33,192	64,104	12,517	76,621
Total expenditure		**2,552,603**	**46,293,584**	**48,846,187**	**2,564,712**	**51,941,737**	**54,506,449**
Net gains on investment	11	804,854	2,019,879	2,824,733	3,995,164	5,157,955	9,153,119
Net (expenditure) / income		**(266,529)**	**2,519,178**	**2,252,649**	**2,549,317**	**3,309,186**	**5,858,503**
Transfer between funds	16	**677,084**	**(677,084)**	**–**	**930,891**	**(930,891)**	**–**
Net movement in funds		410,555	1,842,094	2,252,649	3,480,208	2,378,295	5,858,503
Fund balances brought forward 1 April		32,085,352	36,325,765	68,411,117	28,605,144	33,947,470	62,552,614
Fund balances carried forward 31 March	16, 17	32,495,907	38,167,859	70,663,766	32,085,352	36,325,765	68,411,117

All the above results are derived from continuing activities. There are no gains and losses other than those stated above.

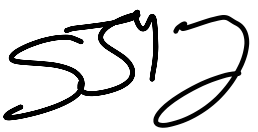
Balance sheets

At 31 March 2022	Notes	Group 2022 £	Group 2021 £	Charity 2022 £	Charity 2021 £
Tangible fixed assets	10	24,628,325	24,836,180	24,628,325	24,836,180
Investments	11	53,651,386	53,099,866	27,503,846	26,722,247
Total fixed assets		**78,279,711**	**77,936,046**	**52,132,171**	**51,558,427**
Current assets:					
Debtors	12	8,150,622	8,795,658	8,161,068	8,968,764
Stock	13	3,004	3,108	3,004	3,108
Short-term deposits		1,049,046	377,879	117,345	61,008
Cash at bank		3,647,571	3,198,637	2,531,101	2,391,975
		12,850,243	**12,375,282**	**10,812,518**	**11,424,855**
Liabilities					
Creditors (amounts falling due within one year)	14a	(8,966,188)	(10,400,211)	(8,241,851)	(9,407,400)
Net current assets		**3,884,055**	**1,975,071**	**2,570,667**	**2,017,455**
Total assets less current liabilities		82,163,766	79,911,117	54,702,838	53,575,882
Creditors (amounts falling due beyond one year)	14c	(11,500,000)	(11,500,000)	(11,500,000)	(11,500,000)
Total net assets		**70,663,766**	**68,411,117**	**43,202,838**	**42,075,882**
The funds of the charity:					
Restricted income funds	16	38,167,859	36,325,765	10,870,683	10,154,781
Unrestricted funds					
Designated fund		3,724,180	3,197,927	3,197,927	329,256
General fund		28,771,727	28,887,425	29,134,228	31,591,845
Total unrestricted funds		32,495,907	32,085,352	32,332,155	31,921,101
Total charitable funds		**70,663,766**	**68,411,117**	**43,202,838**	**42,075,882**

These financial statements were approved and authorised for issue by the President and Chair of the Finance Committee under delegated authority from the Trustee Board.

Signed on behalf of the Trustee Board on 17 August 2022

Professor Sir Jim McDonald FREng FRSE
President



Professor Stephen Young CBE FREng FRS
Chair of the Finance Committee

Consolidated statement of cash flows

Year ended 31 March 2022

	2022 £	2021 £
Cash flows from operating activities:		
Net cash expended by operating activities	(1,795,630)	(3,475,530)
Cash flows from investing activities:		
Dividends, interest and rents from investments	1,050,602	1,217,183
Purchase of property, plants and equipment	(408,084)	(728,836)
Proceeds from the sale of investments	28,901,597	9,985,319
Purchase of investments	(26,628,384)	(9,600,017)
Net cash provided by investing activities	2,915,731	873,649
Cash flows used in financing activities:		
Change in cash and cash equivalents in the reporting period	1,120,101	(2,601,881)
Cash and cash equivalents at 1 April	3,576,516	6,178,397
Cash and cash equivalents at 31 March	**4,696,617**	**3,576,516**
Reconciliation of net income to net cash flow from operating activities		
Net income for the reporting periods (as per the statement of financial activities)	2,252,649	5,858,503
Net (gains) on investments	(2,824,733)	(9,153,119)
Adjustments for:		
Depreciation charges	615,939	534,822
Dividends, interest and rents from investments	(1,050,602)	(1,217,186)
Decrease in stocks	104	87
Decrease /(increase) in debtors	645,036	(902,564)
(Decrease)/increase in creditors	(1,434,023)	1,403,927
Net cash expended by operating activities	**(1,795,630)**	**(3,475,530)**
Analysis of cash and cash equivalents		
Cash in hand	3,647,571	3,198,637
Notice deposits	1,049,046	377,879
Total cash and cash equivalents	**4,696,617**	**3,576,516**

Notes to the accounts

For the year ended 31 March 2022

Note 1 – Accounting policies

(a) Basis of preparation of the accounts

The annual report, incorporating the financial statements for the year ended 31 March 2022, has been prepared in accordance with the Academy's Royal Charter, and in compliance Accounting and Reporting by Charities: Statement of Recommended Practice 2019 applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102) (effective 1 January 2019) – (Charities SORP (FRS102)), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102). The Academy meets the definition of public benefit entity under FRS102. These financial statements are prepared under FRS102.

(b) Historical cost convention

The financial statements have been prepared under the historical cost convention, as modified for the inclusion of investment assets at market value.

(c) Consolidation

The financial statements consolidate the results of the Academy and its own wholly owned subsidiaries, RAE Trading Limited and The Queen Elizabeth Prize for Engineering Foundation, on a line-by-line basis. Transactions and balances between the Academy and its subsidiaries have been eliminated from the consolidated financial statements. Balances between the Academy and the subsidiaries are disclosed in the notes of the Academy's balance sheet. A separate statement of Financial Activities and Income and Expenditure Account for the Academy has not been presented because the Academy has taken advantage of the exemption afforded by FRS 102.

(d) Income

The specific bases for accounting for income are described below. In general terms, income is accounted for on a receivable basis, gross of related expenditure. Income is only recognised where there is evidence of entitlement, where it is probable that income will be received and recognised only when income can be measured.

- Grants receivable are recognised when entitlement to the grant is approved and communicated, and also include returned grants that are accounted for on receipt.
- Gifts and donations and legacies are included in full in the statement of financial activities when receivable.
- For legacies, entitlements is taken as the earlier of the date on which either: the Academy is aware that probate has been granted, the estate has been finalised and notification has been made by the executor(s) to the Academy that a distribution will be made; or when a distribution is received from the estate. Receipt of a legacy, in whole or in part, is only considered probable when the amount can be measured reliably and the Academy has been notified to the executor's intention to make a distribution.
- Income from sales of goods or contracts for services is recognised when the goods and services are delivered.
- Investment income is included in the Statement of Financial Activities in the year in which it is receivable.
- Other incoming resources consist of subscriptions, including income tax recoverable.

(e) Donated services and facilities

Donated professional services and donated facilities are recognised as income when the Academy has control over the item, any condition associated with the donated item has been met, the receipt of economic benefit from the use by the Academy of the item is probable and that economic benefit can be measured reliably. On receipt, donated professional services and donated facilities are recognised on the basis of the value of the gift to the Academy which is the amount the Academy would have been willing to pay to obtain services or facilities of equivalent economic benefit on the open market; a corresponding amount in then recognised in expenditure in the period of receipt.

(f) Expenditure

Expenditure is recognised on an accruals basis, gross of any related income. Costs are allocated to activities as described below. Indirect costs are apportioned to activities on a basis consistent with the use of the resources.

- Costs of raising funds comprise direct costs and expense of staff involved with fundraising, fees paid to investment fund managers, and trading costs.
- Charitable activities – grants. Grants payable are charged in the year in which the commitments to pay the grants are made.
- Charitable activities – other. Other charitable expenditure includes all direct expenditure, including irrecoverable VAT and staff costs, which is directly attributable to activities. Indirect costs are allocated to each charitable activity based on the number of staff directly supporting the activity.

(g) Support costs

Support costs are those functions that assist the work of the Academy and mainly comprise of staff costs and overheads. Support costs, which include irrecoverable VAT, are assigned to the Academy's charitable objectives in line with the direct expenditure under each heading.

(h) Operating leases
Rental costs under operating leases are charged to the Statement of Financial Activities evenly over the term of the lease.

(i) Tangible fixed assets
Depreciation is provided on all tangible fixed assets at rates calculated to write off the cost of each asset over its expected useful life, as follows:
Office fixtures and fittings – *over five years*
Computer equipment – *over three years*
Leasehold cost – *over term of lease*
Carlton House Terrace – *over the term of lease*

(j) Investments
Listed investments are included in the financial statements at market value at the balance sheet date. Gains/losses on disposal of investments and revaluation of investments are recognised in the year of gain or loss and are allocated to the funds to which the investments relate. Investments in subsidiaries are included in the financial statements at cost.

(k) Pensions
The Academy operates a defined contribution pension scheme. The assets of the scheme are held separately from those of the Academy in independently administered funds. The pensions cost charge represents contributions payable to the scheme in the year. The Academy has no liability under the scheme other than the payment of those contributions.

(l) Funds
General funds are those that are available for use at the Trustee Board's discretion in the furtherance of the Academy's objectives. Designated funds are unrestricted funds set aside for unrestricted purposes and which would otherwise form part of general funds. Details of the nature and purpose of each designated fund are set out in note 16. Restricted funds are funds that are subject to restrictions imposed by donors and are applied in accordance with these restrictions. Details of the nature and purpose of each restricted fund are set out in note 16.

(m) Debtors
Trade and other debtors are recognised at the settlement amount due after any trade discount offered. Prepayments are valued at the amount prepaid net of any trade discounts due.

(n) Stock
Stock is included at the lower of cost or net realisable value.

(o) Cash and cash equivalents at bank
Cash and cash equivalents at bank includes cash and short term highly liquid investments obtainable within 3 months.

(p) Creditors
Creditors are recognised where the Academy has a present obligation resulting from a past event that will probably result in the transfer of funds to a third party and the amount due to settle the obligation can be measured or estimated reliably. Creditors are normally recognised at their settlement amount after allowing for any trade discounts due.

(q) Financial instruments
The Academy only has financial assets and financial liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are initially recognised at transaction value and subsequently measured at their settlement value with the exception of bank loans which are subsequently measured at amortised cost using the effective interest method.

(r) Corporation taxation
The Academy is exempt from tax on income and gains falling within section 505 of the Taxes Act 1988 or section 252 of the Taxation of Chargeable Gains Act 1992 to the extent that these are applied to its charitable objectives.

(s) Going concern
These accounts have been prepared on a going concern basis.
Royal Academy of Engineering's senior leadership team monitor the Group and Charity's cash position on a monthly basis by looking at the cash flow forecast for the next twelve months, broken down by month. This forecast, combined with an assessment of the future reserves position, forms the basis of our assessment of going concern. It has been stress tested to reflect a number of possible scenarios regarding the coronavirus pandemic and its impact on the wider economy, including using reverse stress testing. In doing so, we have particularly considered the impact of a global economic recession that results austerity measures and the reduction of the Charity's government funding being reduced over and above our key risk assumptions (set out in the report of Trustee Board).
Based on these forecasts, and the Group and Charity's net asset position of £70.7 million, which is comprised primarily of cash and investments, we believe that the going concern basis of accounting remains appropriate for our accounts. We have also considered whether there is any material uncertainty that may cast significant doubt over the use of that basis for a period of at least 12 months from the date of approval of the financial statements and we do not believe that this is the case.

(t) Government grants
Grants payable are recognised when entitlement to the grant is approved and communicated, and also include returned grants that are accounted for on receipt.

Year ended 31 March 2022	Unrestricted funds	Restricted funds	Totals 31 March 2022	Unrestricted funds	Restricted funds	Totals 31 March 2021
	£	£	£	£	£	£
Note 2 – Grants						
Government grant (See note 3)	–	19,730,182	19,730,182	–	13,800,231	13,800,231

Note 3 – Government grant						
Grant was expended on:						
Programme expenditure	–	18,696,206	18,696,206	–	11,696,206	11,696,206
Cost of managing programmes	–	1,033,976	1,033,976	–	2,104,025	2,104,025
	–	**19,730,182**	**19,730,182**	**–**	**13,800,231**	**13,800,231**

Note 4 – Other grants and contracts						
Investment in Research Talent	–	13,304,319	13,304,319	–	13,977,048	13,977,048
Global Challenges Research Fund	–	2,974,270	2,974,270	–	8,277,532	8,277,532
UK Intelligence Community (IC) Postdoctoral Research Fellowships	–	2,210,530	2,210,530	–	855,000	855,000
Newton Fund	–	1,705,680	1,705,680	–	7,820,780	7,820,780
Engineering skills where they are most needed	–	816,276	816,276	–	–	–
Sainsbury Management Fellowships	–	528,375	528,375	–	485,015	485,015
End of engineered life	–	500,626	500,626	–	–	–
Tier 1 Visa Applications	–	493,175	493,175	–	329,950	329,950
Northern Ireland Engineering Education Programme	–	477,000	477,000	–		–
Leverhulme Fellowships	–	450,425	450,425	–	310,810	310,810
Connecting STEM Teachers	–	353,010	353,010	–	558,561	558,561
1851 Royal Commission Enterprise Fellowships	–	350,003	350,003	–	300,000	300,000
Amazon Future Engineer Bursaries	–	337,500	337,500	–	–	–
BEIS Bhattacharrya	–	309,750	309,750	–	235,998	235,998
Connecting STEM Teachers Social Mobility Pilot	–	300,000	300,000	–	–	–
Programme for safer complex industrial and engineered systems	–	235,223	235,223	–	–	–
Other awards and contracts	–	182,930	182,930	–	229,899	229,899
RAEng/EPSRC Research Fellowships	–	47,349	47,349	–	237,324	237,324

Year ended 31 March 2022	Unrestricted funds	Restricted funds	Totals 31 March 2022	Unrestricted funds	Restricted funds	Totals 31 March 2021
	£	£	£	£	£	£
Welsh Valleys Bursaries Scheme	–	107,393	107,393	–	170,100	170,100
Enterprise Hub	–	100,902	100,902	–	1,135,362	1,135,362
Education Studies and Support	–	99,600	99,600	–	–	–
Sir Ralph Robins Scholarships	–	50,000	50,000	–	50,000	50,000
Africa Prize for Engineering Innovation	–	2,250	2,250	–	100,000	100,000
Engineering FE	–	(27,427)	(27,427)	–	–	–
Pandemic Response	–	–	–	–	123,400	123,400
MacRobert Award	–	–	–	–	20,158	20,158
KS2 STEM Resources and CPD Programme	–	–	–	–	500	500
	–	25,909,159	25,909,159	–	35,217,437	35,217,437
Engineering FE is showing negative income 2021/22 due to the return of funds following the end of the scheme						
Total charitable activities	**–**	**45,639,341**	**45,639,341**	**–**	**49,017,668**	**49,017,668**

Note 5 – Donations and legacies						
Annual Appeal	54,301	–	54,301	60,806	–	60,806
This is Engineering	–	360,000	360,000	–	259,000	259,000
Prince Philip Fund	41,736	–	41,736	–	–	–
Queen Elizabeth Prize for Engineering	–	199,955	199,955	–	204,046	204,046
Legacies	2,811	–	2,811	–	–	–
Other	965	–	965	8,717	–	8,717
	99,813	**559,955**	**659,768**	**69,523**	**463,046**	**532,569**

Note 6 – Investment income						
Dividends and income from equity investments and fixed interest bonds	456,415	593,481	1,049,896	601,616	612,070	1,213,686
Interest on bank deposits	600	106	706	3,316	184	3,500
	457,015	**593,587**	**1,050,602**	**604,932**	**612,254**	**1,217,186**
Note 6a – Other trading income						
Sponsorship and events	118,584	–	118,584	61,774	–	61,774
Subscription income	355,579	–	355,579	335,271	–	335,271
Advertising income and merchandising	16,469	–	16,469	26,208	–	26,208
Conferencing business	433,760	–	433,760	21,157	–	21,157
	924,392	**–**	**924,392**	**444,410**	**–**	**444,410**

	Talent and diversity	Innovation	Policy and engagement	Queen Elizabeth Prize for Engineering Foundation	Total 31 March 2022	Total 31 March 2021
	£	£	£	£	£	£
Note 7 – Charitable activities						
Unrestricted						
Charitable activities	3,434	–	56,299	–	59,733	86,114
Charitable grants	91,717	–	–	–	91,717	65,366
Direct salaries	57,055	–	229,769	–	286,824	292,187
Support costs	342,067	–	642,910	–	984,977	1,222,816
	494,273	**–**	**928,978**	**–**	**1,423,251**	**1,666,483**
Restricted						
Charitable activities	2,597,777	2,233,388	1,445,616	875,098	7,151,879	8,159,376
Charitable grants	2,445,222	26,723,311	983,750	–	30,152,283	36,239,270
Direct salaries	603,372	2,216,504	2,110,471	190,979	5,121,326	4,640,039
Support costs	495,896	2,737,805	398,713	42,696	3,675,110	2,696,258
	6,142,267	**33,911,008**	**4,938,550**	**1,108,773**	**46,100,598**	**51,734,943**
Total charitable activities	**6,636,540**	**33,911,008**	**5,867,528**	**1,108,773**	**47,523,849**	**53,401,426**

Total support costs of £4,659,983 are made up of indirect staff costs totalling £1,638,791 and accommodation costs and overheads totalling £3,021,192

2021 Total charitable activities	**2,710,866**	**44,048,058**	**4,983,955**	**1,658,547**		**53,401,426**

In 2021 £1,736,462 of charitable activities expenditure related to unrestricted funds and £47,063,692 related to restricted funds

	2022	2021
	£	£
Note 8 – Other costs		
Auditor's fees:		
– Audit	33,075	35,026
– Other services	117	3,050
Legal and professional fees	–	38,545
	33,192	**76,621**

£5,007 was charged to the Academy in relation to operating leases

Note 9 – Staff and pensions costs	2022	2021
Gross salaries	6,177,989	5,886,843
Employer's National Insurance less NI Allowance	680,395	651,935
Benefits in kind	34,578	39,839
Pension charge	625,725	608,871
Recruitment costs	223,395	52,833
Temporary staff costs	233,872	28,895
Training costs	65,362	28,431
Other costs	147,045	121,161
	8,188,361	**7,418,808**

Average number of staff in the year by activity:	2022	2021
– Engineering and education	22	17
– Programmes and fellowship	53	44
– Policy and external affairs	31	25
– Executive, development, finance and administration	42	38
– Queen Elizabeth Prize for Engineering Foundation	6	6
	154	**130**

No remuneration is paid to the President or members of the Trustee Board of the Academy. Travelling expenses to attend Trustee Board meetings were nil in 2021/22 (2020/21 £271 – seven members).
No ex gratia payments were made in 2021/22 (2020/21 £72,000)

The emoluments of higher paid staff within the following scales were:	2022	2021
£60,000 – £70,000	11	11
£70,001 – £80,000	3	3
£80,001 – £90,000	1	1
£90,001 – £100,000	3	3
£100,001 – £110,000	1	1
£110,001 – £120,000	1	2
£120,001 – £130,000	1	–
£130,001 – £140,000	1	1
£170,001 – £180,000	–	1
£180,001 – £190,000	1	1

Emoluments include salary, bonuses and benefits in kind but exclude pension scheme contributions. Staff numbers are based on full time equivalent.

The senior management team comprises of a chief executive, chief operating officer and eight directors (2020/21 eight directors) who manage the day-to-day operations of the charity. Their aggregate remuneration in the year was £1,220,534 (2020/21 £1,340,893).

Note: There were no resignations and one appointment among the senior management team during the year.

Note 9(b) – Pensions

The Academy operates a defined contribution pension scheme for staff that joined after 1 January 2000 that is compliant with auto-enrolment legislation. The assets of the scheme are held separately from those of the Academy in independently administered funds. The Academy has no liability under the scheme other than the payment of contributions.

Note 10	Computer systems and equipment	Office fixtures and fittings	Leasehold	Carlton House Terrace improvement	Total
	£	£	£	£	£
Tangible fixed assets (group and charity)					
Cost					
At 1 April 2021	1,688,040	1,346,804	12,509,790	13,996,607	29,541,241
Additions	341,345	66,739	–	–	408,084
At 31 March 2022	**2,029,385**	1,413,543	12,509,790	13,996,607	29,949,325
Depreciation					
At 1 April 2021	(1,290,571)	(672,551)	(1,467,919)	(1,274,020)	(4,705,061)
Charge for year	(165,453)	(233,333)	(91,257)	(125,896)	(615,939)
At 31 March 2022	**(1,456,024)**	**(905,884)**	**(1,559,176)**	**(1,399,916)**	**(5,321,000)**
Net book value					
At 31 March 2022	573,361	507,659	10,950,614	12,596,691	24,628,325
At 1 April 2021	397,469	674,253	11,041,871	12,722,587	24,836,180

All assets are used for charitable purposes.

Medal collections

- The Sir Denis Rooke Medals Collection are on loan from the family of Sir Denis Rooke, who served as Academy President from 1986 to 1991. The collection includes many of the awards Sir Denis received during his distinguished career as a pioneer of the UK's gas industry.
  The Whittle Medals Collection are on loan from the family of Sir Frank Whittle, who patented the jet propulsion engine in 1930. The medals relate to his achievements in engineering and celebrate his successes.
- The Warner Medals Collection was a personal gift by Professor Sir Frederick Warner after his death in 2010.
  The medals relate to his achievements in engineering and celebrate his successes.

These medal collections are not held on the balance sheet, the Trustees consider that it is not practicable to obtain a valuation, but are satisfied that the value of the medals collections is not material.

Note 11 – Investments (group and charity)

Investments held in the general fund portfolio represent those held by the Royal Academy of Engineering with the objective of generating income for the Academy's charitable object while preserving the capital value of the portfolio.

Investments held in the restricted fund portfolio represent those held by the Queen Elizabeth Prize for Engineering Foundation with the objective of generating income for the Foundation's charitable object.

	2022 General fund (Charity)	2022 Designated income funds (Charity)	2022 Total funds (Charity)	2022 Restricted fund (Subsidiary)	2022 Total Portfolio (Group)
Market value at 1 April	25,062,957	1,659,190	26,722,147	26,377,719	53,099,866
Add acquisitions at cost	22,887,321	1,109,031	23,996,352	2,632,032	26,628,384
Less: sales proceeds	(22,991,526)	(1,116,615)	(24,108,141)	(4,793,456)	(28,901,597)
Net investment gains for the year	804,854	88,534	893,388	1,931,345	2,824,733
Market value at 31 March	**25,763,606**	**1,740,140**	**27,503,746**	**26,147,640**	**53,651,386**

Investments in the general fund (charity) consist of securities listed on global stock markets (70% of portfolio) and fixed interest bonds/ diversified assets (30% of portfolio).

The designated income funds consists of funds invested in line with the general fund (charity) investment strategy to support the MacRobert Award and funds invested in securities listed on global stock markets to support the Colin Campbell Mitchell Award.

Investments in the restricted fund (subsidiary) consist of securities listed on global stock markets (75% of portfolio) and fixed interest bonds/diversified assets (25% of portfolio).

	Group		Charity	
	2022 £	2021 £	2022 £	2021 £
Note 12 – Debtors				
Grants and sponsorship receivable	6,654,024	7,835,039	6,654,024	7,835,041
Prepayments	293,739	130,584	293,739	130,584
Other debtors	1,202,859	830,035	967,469	740,232
Amounts due for subsidiary undertakings	–	–	245,836	262,907
	8,150,622	**8,795,658**	**8,161,068**	**8,968,764**
Note 13 – Stocks (Group and Charity)				
Publications, Academy ties, presentation plates and medals	3,004	3,108	3,004	3,108

	Group		Charity	
	2022 £	2021 £	2022 £	2021 £
Note 14a – Creditors (amounts falling due within one year)				
Committed grants and prizes	6,920,722	7,861,464	6,920,722	7,861,465
Deferred income	497,387	598,475	497,387	598,475
Subscriptions in advance	203,363	173,494	203,363	173,494
Other creditors	1,344,716	1,593,652	542,432	436,452
Amounts due to subsidiary undertakings	–	–	77,947	164,388
Social security and other costs	–	173,126	–	173,126
	8,966,188	**10,400,211**	**8,241,851**	**9,407,400**
Note 14b – Deferred income				
Deferred income comprises of advance funding for the Connecting STEM Teachers programme, Enterprise Fellowships and Research Fellowships.				
Balance at 1 April	598,475	727,601	598,475	727,601
Amount released to income earned from charitable activities	(1,172,702)	(1,299,062)	(1,172,702)	(1,299,062)
Amount deferred in year	1,071,614	1,169,936	1,071,614	1,169,936
Balance as at 31 March	**497,387**	**598,475**	**497,387**	**598,475**
Note 14c – Creditors (amounts falling beyond one year)				
Bank loan*				
– Due one to two years	–	–	–	–
– Due within two to five years	–	–	–	–
– Due after five years	11,500,000	11,500,000	11,500,000	11,500,000
	11,500,000	**11,500,000**	**11,500,000**	**11,500,000**

**The Academy has a secured loan of £11.5 million with Aviva, the capital sum is repayable February 2027, an interest rate of 3.11% fixed being applied. The loan is secured against 3 Carlton House Terrace, which was valued at £31.95 million on 28 February 2020. There is currently a 36% loan to value ratio. There is a maximum 45% loan to value ratio set out in the terms of the loan.*

Note 15 – Future commitments				
Total minimum commitments under operating leases				
Rent				
not later than one year	240,000	240,000	240,000	240,000
later than one year and not later than five years;	–	–	–	–
later than five years	–	–	–	–
Equipment				
not later than one year	1,738	1,305	1,738	1,305
later than one year and not later than five years;	–	–	–	–
later than five years	–	–	–	–
Total	**241,738**	**241,305**	**241,738**	**241,305**

Note 16 – Statement of changes in reserves

(a) Restricted funds

The Academy's restricted funds consist of the monies received under grants, corporate donations and contracts to support specific schemes as follows:

- **Department for Business, Energy and Industrial Strategy (BEIS)** provides a government grant to fund programmes in the areas of engineering research and promoting the public understanding of engineering.
- **Investment in Research Talent** recognises the importance of engineering research to the UK. The government has provided the Royal Academy of Engineering with a significant increase in funding over the next four years to attract the best research talent to the UK and support their work.
- **End of engineered life** is a programme funded by the Lloyd's Register Foundation to improve safety in waste and decommissioning for industrial and engineered systems, delivered through Engineering X.
- **Programme for safer complex industrial and engineered systems** is a programme funded by the Lloyd's Register Foundation, delivered through Engineering X.
- **Engineering skills where they are most needed** is a programme funded by the Lloyd's Register Foundation, delivered through Engineering X.
- **Gatsby Charitable Foundation** supports Sainsbury Management Fellowships.
- **RAEng/EPSRC Research Fellowships** are administered by the Academy and funded jointly by the Academy and the Engineering and Physical Sciences Research Council.
- **Leverhulme Trust** supports Senior Research Fellowships of one-year duration.
- **Engineering Leaders Scholarships** assist undergraduate engineering students to realise their full potential and achieve their career goals.
- **Connecting STEM Teachers programme** is building a national network of support for STEM leaders in secondary schools and is supported by Shell, The Arthur Clements Fund, BAE Systems, Boeing, the estate of the late Mr John Gozzard, and the Helsington Foundation.
- **Further Education Fund** is made up of various donations that are used to support the development of new, and the extension of existing, programmes in further education.
- **KS2 STEM Resources and CPD Programme** is funded by BAE Systems and supports the development and dissemination of contextualised resource boxes for use in primary and secondary schools.
- **The Enterprise Hub** supports exceptional entrepreneurs with high-potential ideas to build bold and disruptive enterprises that have a positive impact on society.
- **Africa Prize for Engineering Innovation** aims to stimulate, celebrate and reward innovation and entrepreneurship in sub-Saharan Africa.
- **Ms Morag Campbell Nelder Legacy** is to be used to fund the Colin Campbell Mitchell Award, which is given to an individual or group of outstanding engineers.
- **Newton Fund** schemes promote research and innovation intended to have a direct and long-term impact on the economic development and social welfare of countries participating with the UK in the Newton Fund.
- **The Capital Building Fund** has been used to create a base for the Academy's enterprise activities and develop 3 Carlton House Terrace into a national forum of engineering excellence.
- **This is Engineering**, previously known as the Engineering Talent Project, is a multi-year campaign to encourage more young people from all backgrounds to consider a career in engineering by changing perceptions of the profession.
- **Enriching Engineering Education Programme** is centered on a combination of two-way secondments and collaborative workshops. These secondments and workshops lead to improved industry-academia links and result in wide-ranging benefits for both parties.
- **Project CARE** was launched in March 2020 with a goal to mobilise the Academy's alumni of Africa- based entrepreneurs and leverage the Fellowship and their networks to help strengthen capacity and provide resources to address the consequences and impacts of COVID-19 in African communities in a constructive and sustainable way.
- **Other awards** and contracts are donations and contracts by a number of companies for specific programmes each year.
- **Global Challenges Research Fund** is part of a £1.5 billion UK government fund to support cutting-edge research that addresses the challenges faced by developing countries through collaborative research and innovation, and research and innovation capacity building within both the UK and developing countries.
- **UK Intelligence Community (IC) Postdoctoral Research Fellowships** are offered by the Government Office for Science with the Academy acting as academic engagement partner. They support outstanding early-career science or engineering researchers to promote unclassified basic research in areas of interest to the intelligence, security and defense community.
- **Northern Ireland Engineering Education Programme** is working with schools and colleges across Northern Ireland to encourage more young people, particularly young women and those from socially disadvantaged backgrounds and other under-represented groups, to progress

towards careers in engineering.
- **Amazon Future Engineer Bursaries** is a national bursary programme aimed at supporting women A-level and BTEC/OCR (or Scottish equivalent) students from low-income households who wish to study computer science or related engineering courses at UK universities.
- **Connecting STEM Teachers Social Mobility Pilot** is an evaluated two-year pilot project supporting schools to run action research projects to identify and tackle problems in their schools that they see as barriers that disadvantaged groups of young people face in accessing STEM education and continuing onto STEM careers.
- **Shott Scale Up Accelerator** focuses on leadership skills development and carefully tailored support designed in collaboration with industry experts and leading engineering and technology business leaders.

(b) Designated funds

Strategic Development Fund is used to deliver impactful charitable activities over the next five years and strengthen the Academy for the longer term.

	Balance at 1 April 2021	Incoming resources	Resources expended	Transfers between funds	Net investment gains	Balance at 31 March 2022
	£	£	£	£	£	£
Restricted funds						
Government grant	–	19,730,182	(19,730,182)	–	–	–
Investment in Research Talent	–	13,304,320	(13,304,320)	–	–	–
End of engineered life	346,941	500,626	(391,346)	–	–	456,221
Programme for safer complex industrial and engineered systems	510,745	199,223	(233,073)	–	–	476,895
Engineering skills where they are most needed	236,107	816,276	(505,509)	–	–	546,874
BEIS Bhattacharyya	–	309,750	(309,750)	–	–	–
Sainsbury Management Fellowships	–	564,375	(564,375)	–	–	–
RAEng/EPSRC Research Fellowships	–	47,349	(47,349)	–	–	–
Leverhulme Fellowships	–	450,425	(450,425)	–	–	–
Engineering Leaders Scholarships	176,846	–	–	–	–	176,846
Connecting STEM Teachers	992,701	353,010	(948,814)	–	–	396,897
Connecting STEM Teachers Social Mobility Pilot	–	300,000	–	–	–	300,000
Amazon Future Engineer Bursaries	–	337,500	(107,527)	–	–	229,973
Northern Ireland Engineering Education Programme	–	477,000	–	–	–	477,000
Sir Ralph Robins Scholarships	280,631	50,000	(30,000)	–	–	300,631
Welsh Valleys Bursaries Scheme	87,471	107,393	(101,624)	–	–	93,240
Engineering FE	372,391	(27,427)	(45,071)	–	–	299,893
Enterprise Hub	1,214,721	100,902	(100,902)	(1,000,000)	–	214,721

	Balance at 1 April 2021	Incoming resources	Resources expended	Transfers between funds	Net investment gains	Balance at 31 March 2022
	£	£	£	£	£	£
Shott Scale Up Accelerator	–	–	(159,376)	1,000,000	–	840,624
Africa Prize for Engineering Innovation	552,704	2,250	(144,336)	–	–	410,618
Colin Campbell Mitchell Award	371,833	5,011	(20,680)	–	44,666	400,830
Newton Fund	–	1,705,680	(1,705,680)	–	–	–
Capital Building Fund	2,133,904	–	–	(408,084)	–	1,725,820
This is Engineering	13,957	360,000	(366,079)	–	–	7,878
Enriching Engineering Education Programme	313,524	–	(8,730)	–	–	304,794
Education Studies and Support	–	99,600	(78,600)	–	–	21,000
MacRobert Award	1,270,100	26,268	(61,207)	–	43,868	1,279,029
Other awards and contracts	222,699	182,930	(201,895)	–	–	203,734
1851 Royal Commission Enterprise Fellowships	–	350,003	(350,003)	–	–	–
Global Challenges Research Fund	–	2,974,270	(2,883,787)	–	–	90,483
Tier 1 Visa Applications	–	493,175	(493,175)	–	–	–
UK Intelligence Community (IC) Postdoctoral Research Fellowships	847,199	2,210,530	(1,604,797)	–	–	1,452,932
Pandemic Response	46,056	–	(46,056)	–	–	–
Queen Elizabeth Prize for Engineering	26,335,235	762,262	(1,298,916)	(269,000)	1,931,345	27,460,926
Total restricted funds	**36,325,765**	**46,792,883**	**(46,293,584)**	**(677,084)**	**2,019,879**	**38,167,859**
Designated funds						
Strategic Development Fund	2,531,831	–	–	218,169	–	2,750,000
Capital Building Fund	666,096	–	–	308,084	–	974,180
Ingenia Designated fund	–	16,336	(16,336)	–	–	–
Total designated funds	**3,197,927**	**16,336**	**(16,336)**	**526,253**	**–**	**3,724,180**
General fund	**28,887,425**	**1,464,884**	**(2,536,267)**	**150,831**	**804,854**	**28,771,727**
Total funds	**68,411,117**	**48,274,103**	**(48,846,187)**	**–**	**2,824,733**	**70,663,766**

The general fund deficit of £1,071,279 is the difference between incoming resources of £1,464,884 and resources expended of £2,536,163 All other funds, other than the Queen Elizabeth Prize for Engineering, are funds of the parent charity.

Transfers between funds: a £1 million donation was received 2020/21 for the Enterprise Hub. The donor agreed that his donation should be included within our 50th anniversary fundraising campaign, and for this named donation to be reflected in the title of the programme 'Shott Scale Up Accelerator'. Capital Building Fund transfer relates to fixed asset additions. Queen Elizabeth Prize for Engineering transfer relates to the management fee charged by the charitable parent.

	Balance at 1 April 2020	Incoming resources	Resources expended	Transfers between funds	Net investment gains/(losses)	Balance at 31 March 2021
	£	£	£	£	£	£
Restricted funds						
Government grant	–	13,800,231	(13,800,231)	–	–	–
Investment in Research Talent	–	13,977,048	(13,977,048)	–	–	–
End of engineered life	675,998	–	(329,057)	–	–	346,941
Programme for safer complex industrial and engineered systems	925,712	–	(414,967)	–	–	510,745
Engineering skills where they are most needed	761,544	–	(525,437)	–	–	236,107
Policy Fellowships	–	59,700	(59,700)	–	–	–
BEIS Bhattacharrya	–	235,998	(235,998)	–	–	–
BEIS UK-DE Energy Systems Symposium	–	71,365	(71,365)	–	–	–
Sainsbury Management Fellowships	–	485,015	(485,015)	–	–	–
RAEng/EPSRC Research Fellowships	–	237,324	(237,324)	–	–	–
Leverhulme Fellowships	–	310,810	(310,810)	–	–	–
Engineering Leaders Scholarships	183,646	–	(6,800)	–	–	176,846
Connecting STEM Teachers	1,327,182	558,561	(643,042)	(250,000)	–	992,701
Sir Ralph Robins Scholarships	258,339	50,000	(27,708)	–	–	280,631
Welsh Valleys Bursaries Scheme	36,990	170,100	(119,619)	–	–	87,471
Policy Centre	–	1,000	(1,000)	–	–	–
Engineering FE	136,617	–	(14,226)	250,000	–	372,391
Barrow Engineering Programme	13,634	–	–	–	–	13,634
KS2 STEM Resources and CPD Programme	107,120	500	(107,620)	–	–	–
Enterprise Hub	265,654	1,135,362	(186,295)	–	–	1,214,721
Africa Prize for Engineering Innovation	453,024	100,000	(320)	–	–	552,704
Colin Campbell-Mitchell Award	339,567	10,131	(25,675)	–	47,809	371,833
Newton Fund	–	7,820,780	(7,820,780)	–	–	–
Capital Building Fund	2,862,740	–	–	(728,836)	–	2,133,904
This is Engineering	260,953	259,000	(505,996)	–	–	13,957
Lowestoft Engineering Programme	–	3,350	(3,350)	–	–	–
Enriching Engineering Education Programme	364,561	–	(51,037)	–	–	313,524
Sir Angus Paton Bequest Fund	56,603	–	–	–	–	56,603
MacRobert Award	1,092,435	49,321	(62,237)	–	190,581	1,270,100
MacFarlane Award	17,038	–	(2,500)	–	–	14,538
Other awards and contracts	118,959	–	–	–	–	118,959
RAEng/WCE Awards	–	16,250	(16,250)	–	–	–
1851 Royal Commission Enterprise Fellowships	–	300,000	(300,000)	–	–	–
Global Challenge Research Fund	–	8,277,532	(8,277,532)	–	–	–
Tier 1 Visa Applications	–	329,950	(329,950)	–	–	–

	Balance at 1 April 2020	Incoming resources	Resources expended	Transfers between funds	Net investment gains/(losses)	Balance at 31 March 2021
	£	£	£	£	£	£
UK Intelligence Community (IC) Postdoctoral Research Fellowships	985,016	855,000	(992,817)	–	–	847,199
Project CARE	–	123,400	(77,344)	–	–	46,056
Hamilton Commission	–	44,000	(25,035)	–	–	18,965
RAF Centenary Programme	–	33,290	(33,290)	–	–	–
History of the Royal Academy of Engineering	–	944	(944)	–	–	–
Queen Elizabeth Prize for Engineering	22,704,140	777,005	(1,863,418)	(202,055)	4,919,565	26,335,237
Total restricted funds	**33,947,470**	**50,092,968**	**(51,941,737)**	**(930,891)**	**5,157,955**	**36,325,765**
Designated funds						
Strategic Development Fund	2,456,831	–	–	75,000	–	2,531,831
Capital Building Fund	–	–	–	666,096	–	666,096
Ingenia Designated fund	–	26,144	(26,144)	–	–	–
Total designated and special funds	**2,456,831**	**26,144**	**(26,144)**	**741,096**	**–**	**3,197,927**
General fund	**26,148,313**	**1,092,721**	**(2,538,568)**	**189,795**	**3,995,164**	**28,887,425**
Total funds	**62,552,614**	**51,211,833**	**(54,506,449)**	**–**	**9,153,119**	**68,411,117**

Note 17 – Analysis of net assets between funds

	Tangible fixed assets 2022	Investments 2022	Current assets 2022	Liabilities 2022	Total net assets 2022
	£	£	£	£	£
Restricted funds	24,628,325	27,887,781	3,052,427	(17,400,674)	38,167,859
Special and designated funds	–	–	3,724,180	–	3,724,180
General funds	–	25,763,605	6,073,636	(3,065,514)	28,771,727
Total funds	**24,628,325**	**53,651,386**	**12,850,243**	**(20,466,188)**	**70,663,766**

	Tangible fixed assets 2021	Investments 2021	Current assets 2021	Liabilities 2021	Total net assets 2021
	£	£	£	£	£
Restricted funds	24,836,180	28,036,910	5,222686	(21,770,011)	36,325,765
Special and designated funds	–	–	3,197,927	–	3,197,927
General funds	–	25,062,956	3,954,669	(130,200)	28,887,425
Total funds	**24,836,180**	**53,099,866**	**12,375,282**	**(21,900,211)**	**68,411,117**

Note 18 – Subsidiary activities

The Academy has one wholly owned subsidiary, RAE Trading Limited (registered company number 08038360) and a charitable subsidiary company, the Queen Elizabeth Prize for Engineering Foundation (registered charity number 1147743, registered company number 8077332). RAE Trading Limited was formed in April 2012 and manages a conferencing business at Prince Philip House; all available trading profits are gift-aided to the charity.

RAE Trading Limited and the Queen Elizabeth Prize for Engineering Foundation are registered in the UK and have the same year end date as the charity.

The Academy owns all 100 £1 shares in RAE Trading Limited.

The Queen Elizabeth Prize for Engineering Foundation was formed in May 2012 and advances the education of the public in the subject of engineering by awarding biennially a high-profile and internationally recognised prize for engineering.

All activities have been consolidated on a line-by-line basis in the statement of financial activities and these results have been adjusted to eliminate income and expenditure relating to conferencing activities to the Academy and the Queen Elizabeth Prize for Engineering, and management fees payable to the Academy.

At 31 March 2022	RAE Trading Ltd		Queen Elizabeth Prize for Engineering Foundation	
	2022	2021	2022	2021
	£	£	£	£
Total incoming resources	505,779	20,957	762,262	777,005
Total resources expended	(413,424)	(173,172)	(1,567,916)	(2,065,473)
	92,355	(152,215)	(805,654)	(1,288,468)
Total investment (losses)/gains	–	–	1,931,345	4,919,565
Net funds before gift aid	92,355	(152,215)	1,125,691	3,631,097
Gift aid to Royal Academy of Engineering	(92,355)	152,215	–	–
Retained net funds for the year	–	–	1,125,691	3,631,097
The aggregate of the assets, liabilities and funds was:				
Assets	317,033	59,338	28,132,256	27,550,402
Liabilities	(376,793)	(211,453)	(671,330)	(1,215,171)
Funds	**(59,760)**	**(152,115)**	**27,460,926**	**26,335,231**

The parent charity's results for the year are disclosed as follows:

	Academy	
	2022	2021
	£	£
Gross income	47,984,118	49,694,456
Retained net funds for the year	813,244	2,176,634

Note 19 – Related party transactions

The Academy has the following transactions within its subsidiaries during the year:

	Sales	Salary recharges	Management charges	Debtors	Creditors
	£	£	£	£	£
Queen Elizabeth Prize for Engineering Foundation	–	323,636	269,000	76,336	529
RAE Trading Limited	72,019	–	21,400	169,501	(78,476)

A member of staff of the Royal Academy of Engineering R Earnshaw is a close family relation of C Earnshaw who is a Trustee of the Royal Academy of Engineering. The staff appointment was made prior to C Earnshaw becoming a Trustee. All employee salaries including that of R Earnshaw are set in line with market benchmarks.

All transactions in respect of trustees is provided for in Note 9.

Note 20 – Analysis of changes in net debt

	2022	Cash flows	2021
	£	£	£
Cash and cash equivalents			
Cash in hand	3,647,571	448,934	3,198,637
Notice deposits	1,049,046	671,167	377,879
	4,696,617	**1,120,101**	**3,576,516**
Borrowings			
Debt due within one year	–	–	–
Debt due after one year	(11,500,000)	–	(11,500,000)
Total funds	**(6,803,383)**	**1,120,101**	**(7,923,484)**

Legal and administrative information

Name and Registered Office

The Royal Academy of Engineering is a registered charity No. 293074. It is a corporate body governed by Royal Charter. The registered office is Prince Philip House, 3 Carlton House Terrace, London SW1Y 5DG.

Bankers

National Westminster Bank plc
Charing Cross, London Branch
PO Box 113, Cavell House
2a Charing Cross Road
London WC2H 0NN

Solicitors

Womble Bond Dickinson
4 More London Riverside
London SE1 2AU

Auditor

BDO LLP
55 Baker Street
London W1U 7EU

Investment managers

Waverton Investment Management Limited
16 Babmaes Street
London SW1Y 6AH

Trustee Board members

The Academy's Trustee Board comprises 13 members elected by and from the Fellowship with the discretion to co-opt up to two additional members. Trustee Board members are the Trustees of the Academy as defined under its status as a registered charity. The Trustee Board meets at least six times a year and is responsible for the governance of the Academy. At these meetings, the Trustee Board will discuss issues of strategy and policy and also matters referred to it by the governance committees for Finance, Audit and Risk, Conduct, Membership, Nominations, and Remuneration.

All Trustee Board members and committee members give their time freely; no remuneration was paid in the year beyond the reimbursement of reasonable expenses. The majority of Academy activities are controlled by committees primarily composed of Fellows. The members of the Trustee Board during the year were:

Officers

President
Professor Sir Jim McDonald FREng FRSE

Vice-Presidents
Naomi Climer CBE FREng
Vice-President for Fellowship Engagement
(retired 22 September 2021)

Professor Peter Guthrie OBE FREng
Vice-President for Committee Coordination
(appointed 22 September 2020)

Catriona Schmolke FREng
Vice-President for Fellowship Engagement
(appointed 22 September 2021)

Members of the Trustee Board at the date the report was approved:

Professor Bashir Al-Hashimi CBE FREng
(appointed 22 September 2021)

Sir Simon Bollom KBE CB FREng

Chris Earnshaw OBE FREng

Dr Carolyn Griffiths FREng
(appointed 22 September 2021)

Dame Judith Hackitt DBE FREng

Professor Eileen Harkin-Jones OBE FREng

Professor John Loughhead CB OBE FREng

Professor Nilay Shah OBE FREng
(appointed 22 September 2021)

Professor Jeremy Watson CBE FREng

Professor Stephen Young FREng FRS

Other Trustees who served during the period of the report:
Naomi Climer CBE FREng
(retired 22 September 2021)

Professor Peter Goodhew OBE FREng
(retired 22 September 2021)

Professor Stephen Williamson FREng
(retired 22 September 2021)

Royal Academy of Engineering

The Royal Academy of Engineering is harnessing the power of engineering to build a sustainable society and an inclusive economy that works for everyone.

In collaboration with our Fellows and partners, we're growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public.

Together we're working to tackle the greatest challenges of our age.

What we do

TALENT & DIVERSITY

We're growing talent by training, supporting, mentoring and funding the most talented and creative researchers, innovators and leaders from across the engineering profession.

We're developing skills for the future by identifying the challenges of an ever-changing world and developing the skills and approaches we need to build a resilient and diverse engineering profession.

INNOVATION

We're driving innovation by investing in some of the country's most creative and exciting engineering ideas and businesses.

We're building global partnerships that bring the world's best engineers from industry, entrepreneurship and academia together to collaborate on creative innovations that address the greatest global challenges of our age.

POLICY & ENGAGEMENT

We're influencing policy through the National Engineering Policy Centre – providing independent expert support to policymakers on issues of importance.

We're engaging the public by opening their eyes to the wonders of engineering and inspiring young people to become the next generation of engineers.

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