



THE  
OPERATIONAL  
RESEARCH  
SOCIETY

# Annual Report and Accounts

**for the year ended 31 December 2022**

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# Foreword from the President

It is a great pleasure to introduce this report, which describes The Operational Research Society's achievements during 2022 and sets out our future plans.

Last year's foreword talked about how both the Society and the wider community can start to turn our thoughts to our role in the recovery towards some form of normality following the COVID pandemic. At the moment, it seems we're heading from one worldwide crisis to another, with the impact of the war in Ukraine and the cost-of-living crisis continuing to keep our operating environment very fluid. The Society is still considering how to combine the best of the online world with face-to-face elements. It's clear that many of our governance meetings will continue to take place via tools like Zoom and Teams, saving the cost, time and environmental impact of travelling to meetings, but the balance for our other events is still shifting, and the equilibrium point is some way of being found.

This report describes some of The OR Society's key achievements during 2022 in responding to the opportunities and challenges presented by the operating environment. These have included: building the scope and reach of our online delivery of services, the move towards becoming an End Point Assessment Organisation for the level 7 apprenticeship for an Operational Research Specialist; and our continued contribution to the Royal Society inspired Alliance for Data Science Professionals.

The end of 2022 is also a time of change for personnel at the Society. My term as President began in January; I'd like to thank my predecessor, Edmund Burke, for all his efforts in helping to guide the Society through the challenges of the COVID pandemic. The end of the year was also spent in preparation for a change at the head of the Society's staff, with Seb Hargreaves lined up to replace Gavin Blackett as Executive Director.

Later in this report I'll be listing some of the objectives for 2023. This will be a significant year for the Society as we launch celebrations for our 75<sup>th</sup> anniversary. We'll be looking at the past, present and future for the Society, and aim to capitalise on this opportunity to raise the profile of operational research and the Society.

Gilbert Owusu  
OR Society President 2023-2024  
May 2023

# Introduction

The Operational Research Society is a charity set up to advance knowledge, interest and education in operational research (OR). Our vision is of a world improved by rigorous analysis and better, evidence-based decision-making: "OR providing world class analysis for world class decisions". In this world OR would be seen as indispensable – not just a 'nice to have' but a 'must have' – and be used and acknowledged widely in all areas of industry, business, government and the third sector.

As a charity, we must work for the public benefit, but we also aim to work for the good of our members, because without active, able and well-supported researchers and practitioners, students and supporters, OR would not exist. We disseminate learning; promote awareness of OR; support OR professionals and standards; and aim to ensure that UK OR has a 'voice at the table', both in the international OR world and in wider UK arenas. This represents a broad programme of activities and services, that has been growing year on year and that we continue to maintain and develop.

With the continuing dramatic changes in the world around us – the global coronavirus pandemic – our activities and services have had to adapt accordingly. These changes present great challenges for the whole world, but offer great opportunities for the OR discipline, OR professionals and The OR Society.

## Review of the Year 2022

2022 was the third year of our 3 to 5-year strategic planning cycle, for which we adapted our main priorities on top of the 'Business as Usual' services and activities. The strategic pillars are: raising awareness of the importance of OR; supporting OR knowledge development; supporting OR education; growing membership and wider reach; ensuring financial sustainability of the Society; and embedding good diversity practice in OR and the ORS. Whilst we aim to put EDI considerations at the heart of everything we do, we felt its importance deserves highlighting as a separate strategic strand.

### *Highlights of the Year*

This has been another year of highlights which, along with our full range of activities, support our charitable aims to advance knowledge, interest and education in OR.

#### **Advancing knowledge**

The Society's portfolio of academic journals continued to make a substantial contribution to both advancing and sharing knowledge. The publishing landscape is evolving, and the move towards Open Access has meant our content has become more widely available through the increasing number of 'read and publish' deals that are being signed across the world. More than one million downloads of academic papers were made during the year.

Operational research apprenticeships took further steps towards becoming a serious route to training the analysts of the future, with the Society looking to establish itself at the heart of the quality assurances processes core to that route.

The Society continues to work with Council for Mathematical Sciences on the next steps towards the establishment of the Academy for Mathematical Sciences. Decisions on the format of the proto-academy are advancing quickly with the help of volunteers from across the whole of the mathematical sciences community. This will play a key role in the future advancement of knowledge in OR. Other activities to advance knowledge are covered below in the Events, Publications and Research sections.

## **Advancing interest**

The Society's strategic goal of advancing interest in OR returned to a more normal footing with the return of some of its in-person events. The opportunity to expand its global reach through a complementary programme of online events was grasped wholeheartedly.

The Society continued to implement the recommendations of its Artificial Intelligence (AI) task and finish group, especially through its links to the work of the ValidateAI group ([validateai.org](https://validateai.org)). The Society continues to be at the heart of the Alliance for Data Science Professionals, establishing standards for both practitioners and degree courses. The first cohort of awardees were recognised as Advanced Data Science Professionals. Other activities to advance interest are covered below in the Events, OR in Education and Pro Bono OR sections.

## **Advancing education**

The Society is continuing pursuit for approval as an End Point Assessment Organisation. The first cohort of apprentices commenced in early 2022. This represents an exciting new route into the profession. Other activities to advance education are covered below in the Education, Training and OR in Education sections.

## **Other highlights**

Some of our 2022 highlights made contributions to all our charitable aims. These included the continuing growth of our Women in OR and Analytics Network (WORAN), both in terms of the number of participants and its activities during the year. It held its first Land lecture, named after one of the early female pioneers in the field. The network provides a key focus for addressing issues facing women in our profession.

Finally, the Society is actively involved in an alliance of learned societies (BCS, IMA, and RSS) to implement recommendations in the Royal Society report *Dynamics of data science skills*, including shaping professional standards for data science. This has the potential to be pivotal in improving trust in data analysis across all sectors of the economy. Its first cohort of candidates had their professional status recognised.

## ***Achievements during the year***

## **Equality, Equity, Diversity & Inclusion**

EDI pervades all we do at the OR Society and, as such, you will see details of some of our efforts in the individual sections of this report.

Our feedback from the Science Council EDI framework was positive and we have made much progress since our last assessment with more still to be made. A key piece of feedback was to grow the number of voices within the Society who embrace diversity. An example of working towards this is the increasing number of the EDI celebration days that were highlighted by OR society members, rather than the Society staff or the Diversity champion.

The OR Society EDI committee was established, and meetings have representatives from across all committees. In line with increasing the number of voices, this is evident in the ownership different areas, including committees, are taking for EDI in general and, specifically, the part of the Framework they are responsible for progressing.

We have made progress on the EDI data capture front (thank you to the Society members for this) and we were invited to share insights on our progress at a Science Council EDI workshop on collecting diversity data. The Society continues to be part of the Science Council EDI steering group and held discussions with the Engineering & Physical Sciences Research Council (EPSRC), specifically on the EDI area of the Mathematics

Theme. The Society submitted formal responses into a number of EDI consultations, including the UK Research & Innovation EDI Strategy. The Society has held a number of discussions with INFORMS on EDI also – watch this space for initiatives to follow.

Example areas of focus, include:

*Menopause* - WORAN continues to be successful and participation across all genders at their frequent events is growing. A popular virtual event was held on the menopause and a recording of the session is available (<https://www.youtube.com/watch?v=-dYopMZXWc>). More activities related to the menopause are planned.

*Social Mobility* – The Society continues to provide funds to In2Science a charity focussed on improving social mobility in STEM. The funds help to sponsor a student. This is in addition to work related to social mobility different committee areas undertake.

*Neurodiversity* - The Board EDI Champion attended training and is now an Autism Ambassador for Hampshire. The Society, provided, via Autism Hampshire, a brief (with the recording available to watch) on Autism to society members. The EDI Champion led a discussion of the Science Council EDI group on neurodiversity and some resources were shared as part of this from other professional societies.

## **Conferences and Events**

The return to physical, in-person events has been gradual and started with the 2022 Analytics Summit at the beginning of July at the Institute for Engineering and Technology in London. This event had just over a hundred attendees, of whom a quarter were virtual. Later in the same month, ISMOR returned to Royal Holloway with a similar number of attendees but where almost everyone was present in person. These events both had a mixture of some virtual activities and some physical though it still seems to be difficult to manage events in such a way as to produce a single experience which is equally enjoyable and involving whether you are attending in person or virtually. We are continuing to pursue this, however, and we would be very interested in hearing from any members who have experience of successful models for fully blended events. Many thanks are due to the committees of these conferences for leading the way on the return to in-person events and for their success.

The critical point for this return to physical events was the annual conference at the University of Warwick in September. By conscious decision of the OR64 committee and the Society this was an entirely face-to-face conference. The annual conference is one of those things that binds together the various disciplines, specialities and communities that constitute Operational Research in the UK, and it was felt that it was important for us all to have the chance to come together in person and renew these connections. We are aware however that for some people the risks involved in meeting face-to-face are still too great and we hope that the continuing programme of virtual events and options provide an effective alternative.

For those able to attend, OR64 was a fun-packed conference, with all the buzz and excitement of face-to-face interaction. There were sessions full of pertinent questions and sometimes animated discussion, including a full Making an Impact workshop programme and a set of plenaries with a strong practical focus, together with a full social programme. Finally, and for the first time in three years, there was a Gala Dinner, with food, wine, and dancing. OR64 had 275 registered delegates giving 165 presentations and 170 delegates attended the Gala Dinner. The committee is to be congratulated on the way in which it met the challenge of our first fully physical conference since 2019.

Another important step forward for the Events offered by the Society this year is the establishment of a new, named annual lecture – the WORAN Land Lecture, named in honour of Ailsa Land, the first female professor of Operational Research in the UK. The first Land Lecture was held on Ada Lovelace Day – 11 October 2022,

with Professor Carole Blundell of the University of Bath as the speaker. This is the first of the OR Society's named lectures to honour a female pioneer of OR.

Events have continued in 2023 with an online Beale Lecture delivered by Robert Dyson looking at a career in Operational Research over seven decades – a theme that we will return to later in 2023 as we commence a year of events and activities commemorating 75 years of the OR Society.

We have also been thinking about the strategy for Events for the Society and their future direction. The last few years have provided an opportunity to stop and think about what we are doing and whether the events we are providing meet the needs of our audience. This includes the question of the right balance of virtual and live events but is more fundamental than that.

We would like to know what it is that Events do for you and your organisation. What is it that you value most about our events and how can we improve? We are interested in hearing from academics, practitioners, and retired members and from those involved in all areas of OR, whether hard or soft.

Finally, it is important to recognise that all of this would not have happened without the many volunteers and hard-working OR Society staff members who work on our events – the Annual Report gives me the opportunity to say a big thank you from me personally to all of them.

## **Publications**

The OR Society has six academic journals. These are the *Journal of The Operational Research Society* (JORS), *European Journal of Information Systems* (EJIS), *Knowledge Management Research & Practice* (KMRP), *Journal of Simulation* (JOS), *Health Systems* (HS) and the *Journal of Business Analytics* (JBA).

Statistics relating to the usage of the Society's journals show year-on-year increases across all titles continuing the upward trend observed in recent years. The number of article downloads in 2022 exceeded 1 million, an increase of 10% compared to 2021. There was a very slight increase in the number of citations to articles in the Society's journals in 2022. However, this consolidated the substantial 19% increase in citations recorded in 2021. The total number of mentions of the journals on Twitter in 2022 was 40% higher than in 2021 and 334% higher than in 2019. This reflects the considerable efforts of the Editorial Teams, the Society and Taylor & Francis to promote the journals on social media.

The 2021 Impact Factors (published in June 2022) for *JORS*, *EJIS*, *KMRP* and *JOS* all showed increases compared to the 2020 data. In particular, *EJIS* continued its remarkable progress. Having increased from 2.6 in 2019 to 4.3 in 2020, the Impact Factor of *EJIS* more than doubled to 9.0 in 2021. *HS* and *JBA* are expected to receive Impact Factors for the first time when the 2022 figures are released. A CiteScore (a performance measure similar to Impact Factor derived from the Scopus database) is available for all six journals. The CiteScores published in 2022 showed improvements for all journals compared to the previous year, with the highest increases for *EJIS* and *JOS*.

The journals are led by hard working editorial teams who strive to provide submitting authors with timely and constructive feedback. In 2022, Claudia Szabo (University of Adelaide) replaced John Fowler on the editorial team for *JOS* and Ann Fruhling (University of Nebraska Omaha) was appointed to replace Nelson King on the editorial team for *HS*. The Society is currently recruiting to fill a vacancy for *JOS* following the untimely death of Loo Hay Lee in 2022.

The diversity of the editorial boards for each of our journals continues to be monitored and managed. Although some progress was made to increase diversity through appointments in the past year, at the end of

2022 the members of the editorial boards are predominantly male (72%) from North America (41%) or Europe (38%).

Taylor & Francis has changed the way in which volumes are compiled so that 2022 will be the last year in which the journals will be constrained by strict page budgets. All the journals have accumulated a stock of accepted papers waiting to be published in an issue. These papers are published online immediately, but there can be a delay of more than a year before publication in an issue. Going forward, editors will have discretion to increase the size of a volume to ensure more timely publication of papers.

Editors rely on the voluntary contributions of reviewers who provide reports on articles submitted for publication. Acknowledging these valuable contributions is an important element of the Society's strategy for recruiting and retaining reviewers. Reviewers can choose to have their efforts recognised via Publons. In 2022, for the second year, the Society awarded certificates to reviewers who had made particularly helpful contributions to the reviewing process.

The Society continues to develop its strategy for open access and open data with advice and support from Taylor & Francis. In line with Taylor & Francis's basic data sharing policy, all journals encourage authors to share or make open the data supporting the results or analyses presented in their paper where possible. All journals also offer authors the opportunity to publish open access via Taylor & Francis's Open Select publishing program. Of the papers published in the Society's journals in 2022, approximately 15% were published open access. A proposal to convert *HS* to a fully open access journal from 2024 has been developed with the editorial team and is expected to receive final approval early in 2023.

The Society also publishes two magazines: *Impact* and *InsideOR*.

*Impact* is published biannually and is aimed at practitioners and potential users of OR. The magazine is freely available in print or electronic versions. The founding editor, Graham Rand, has indicated that after eight years in charge, the Autumn 2022 issue will be the last that he edits. A process to appoint a new editor for *Impact* is underway.

*InsideOR* is the news magazine for Society members and is published monthly. Despite a long-standing wish to stand down, John Crocker continued to edit *InsideOR* throughout 2022 and will continue as editor until a suitable replacement has been found.

Carol McLaughlin from the OR Society office and Richard Goodman from Taylor & Francis continue to work with the Editorial Teams to monitor and update our joint publications strategy. Our thanks go to all those involved over the past year in supporting and promoting the OR Society's publications.

## **Education**

The key activities for the Education committee are laid out below under its various areas of influence.

### Training Working Group (TWG)

During the year, our most popular courses have been offered both online and face-to-face while the remaining courses have been offered only online.

The work to develop a training programme in AI/ML with the Alan Turing Institute continues although it has slowed substantially following Eve Hardy's departure as Education manager. Equally, we are still planning to develop the directory of Business Analytics degrees and programme directors as mentioned previously. In particular, we will focus on the developing a potential Pro Bono OR project to build a web scraper or similar software to help collect data.

TWG have been thinking about an increased number of KPIs to measure and report. Six potential KPIs are under discussion, some of which are new while others are currently used. Some of them will be aimed at measuring EDI metrics, while others are harder to pinpoint – for example the quality of courses is not straightforward to measure. TWG would ultimately like a measure of quality to extend into accrediting courses, but there are challenges around who reviews the course, and funding the reviews.

### OR in Education (ORiE)

ORiE volunteers have attended a variety of events during the year. These have included:

- British Science Fair
- New Scientist Live
- Brunel University Career Fair
- Oxford University Career Fair
- Birmingham University Maths Fair
- Essex University Career Fair
- Bristol University Career Fair

The ORiE taskforce have identified their aims and objectives for 2023 and want to align them with the Society's EDI policy. Due to costs of attending the larger events, and the potential blockers for public to attend (cost of tickets, transport, location), ORiE is investigating which of the large-scale events will best align with its objectives. The taskforce is also developing a volunteer strategy which will be a joint effort with the Pro Bono scheme so that the same strategy sits across the whole organisation.

While the slow return to normality is welcome, it is worth highlighting that a growing number of face-to-face events increases the pressure on the available resources. This is particularly true for ORiE. The number of registered volunteers has increased over the years, but this has not been accompanied by an increase in active volunteers; as a result, volunteer availability is the largest barrier to carrying out more outreach work. For instance, lack of volunteers was the main reason for missing events in the year. This is a shame considering that feedback from volunteers and participants on the ORiE events is generally positive.

The Career Open Day took place on 16 November at the ThinkTank in Birmingham. 397 students were booked with 15 exhibitors. Early numbers show that just over 100 students attended, which is more than the 50% drop off rate expected for a free event. Online survey links have been sent to exhibitors, students who attended and students who didn't attend to try to understand any blockers. ORiE have suggested that for 2023 another location is chosen as then event has been held in Birmingham for a number of years. A decision will be taken on this once survey results have been collated.

The Taskforce has recently asked teachers to join to provide some valuable perspective on outreach work with schools that it currently lacks. ORiE is still in the process of setting up a formal risk register and reviewing the theory of change document in order to set new KPIs to better capture the work done and challenge us to achieve new targets.

### Apprenticeships

The OR Society is planning to apply to become an "End Point Assessment Organisation" (EPAO) for the Level 7 (L7) postgraduate apprenticeship in the occupation of "OR Specialist". The Education Manager has explained the intricacies of the application process and the paperwork that needs to be submitted to Ofqual.

The Education committee has also discussed how the role of the Education manager will evolve once the Society becomes an EPAO and the impact it will have on staffing and eventually financial resources. We have asked for information on the role of the Education committee in advising/supervising the assessment procedures. At the moment, it is not clear, and more clarity will be needed so that the committee can receive



the right training. Following further investigation and discussion, a comprehensive picture of amount of work involved to submit the application and carry out the day-to-day management has been formed. A meeting has taken place with a specialist EPAO consultant, who has agreed to submit a formal proposal of the options available to the Society at this point.

An L6 (degree level) apprenticeship trailblazer group is almost set up as had been done previously in the case of the L7 apprenticeship.

#### Joint Mathematical Council (JMC)

JMC met in February to discuss the plans for a national Academy for Mathematical Sciences. JMC are currently exploring ways they can support/get involved in planning the educational elements of the academy, including sharing their experience in similar past projects. The timing of this involvement is also likely to be important.

JMC also discussed the maths education pipeline. Mid-range universities are increasingly asking for higher grades when students apply, creating a surplus of university places being offered to high achieving students and fewer universities offering places to students achieving B and C grades at A Level. This has the potential to make maths a more elite subject which could reduce the number of students going on to study maths and reducing the diversity of potential hires with maths degrees. As a solution for this will need to be a large-scale effort, rather than at individual universities, JMC will continue to discuss potential solutions.

#### Data science degrees standards

Degree accreditation is important to universities, students and employers, and this could be an important area of growth for the Society. There is an opportunity for the ORS to be involved in the data science degree accreditation, however, this poses a risk that we make accredited data science degrees more appealing than unaccredited OR degrees. It may be worth developing OR degree accreditation alongside participation in the data science degree accreditation scheme. More research needs to be done into the costs for this and how thorough the accreditation process should be. There is also the possibility of accrediting degrees or business schools or both.

The process could also be linked to personal accreditation schemes, such that students taking certain degrees are automatically given credits towards personal accreditation such as ACAP/CAP. This is currently unpopular in the UK, but there is an issue of low awareness amongst students and low demand from employers. Both of these would need to be tackled to see a successful accreditation scheme. It was suggested employers would be easier to approach at first as there is no cost barrier to asking for the qualification.

### **Research**

The Research committee aims to support the development of operational research (OR) knowledge and increase the scale and impact of OR research in the UK. In 2022 the committee underwent a change in leadership as Professor Kevin Glazebrook stepped down as chair after completing two terms. The Society is grateful to Kevin for establishing the committee and creating the framework that has helped the Society influence OR research. The baton was passed to Professor Christine Currie, who previously served on the committee.

During 2022, the committee was busy with two major initiatives: the Academy of Mathematical Science and the development of the Knowledge Exchange Hub for Mathematical Sciences (previously called the Connected Centres Network). The Academy aims to be an authoritative and persuasive voice for the whole of the mathematical sciences, incorporating academia, practice and mathematics education. The OR Society has a unique position among the learned societies given the relatively high percentage of practitioners

among its members. This allows it to represent both university academics and practitioners applying maths in real-world situations, making it well-placed to contribute to these initiatives. Several members of the Research committee were involved in the Advisory Boards and working groups led by the Council of Mathematical Sciences (CMS) following the publication of Green Papers in 2021. In June, members were recruited to the Academy's Executive Committee, with Christine Currie covering Practitioner Affairs and Knowledge Exchange, subsequently renamed Implementation of Mathematical Sciences; and Professor Miguel Anjos as an advisory board member. Outside of the committee, Ruth Kaufman has been appointed to the Executive, Covering Governance and Fellowships. A major consultation on the Academy is planned for Spring 2023, and the Society hopes to involve members across the OR community to make a contribution.

In 2022 the Research Framework Excellence 2021 was published. OR research is assessed under three panels: Mathematical Sciences, Computer Science and Business and Management. Members of the committee hold positions on these panels (Paul Harper, Mathematical Sciences; Tom Archibald, Business and Management) and provide feedback on outputs relevant to the OR community. One area of concern was, based on current data, mathematical sciences research income had barely changed since 2014; this is something the Committee plans to investigate further with EPSRC during 2023.

The committee has continued to work closely with EPSRC and has a healthy representation of ORS members involved in all the EPSRC's key committees, including the Peer Review College. The committee contributed to the development of EPSRC's EDI Strategy which was published in 2022 and looks forward to working with EPSRC to facilitate and develop a more diverse and inclusive OR research infrastructure.

In 2022, the committee also reviewed its priorities to achieve its aims. These include ensuring that the Society is fully informed about the research landscape and using its knowledge to respond to issues, threats, and opportunities; ensuring that the Society's voice is heard in relevant national bodies and consultations with respect to OR research and its impact; enabling the OR research community to access funding and achieve impact, and enabling the OR practice community to benefit from research and academic expertise; and ensuring that the Society makes research-related information accessible via the website or other routes. To support these priorities, additional members will be recruited during 2023 to sit on the committee and will be assigned specific roles on behalf of the Society. This will include representing the ORS community with external organisations and relevant national bodies.

Finally, the committee set an objective to develop an OR Early Career Network, which has now been established and developed into a Special Interest Group (SIG) to allow for a more formal structure and continuity. Both the current Chair (Laura Boyle) and Secretary (Luke Rhodes-Leader) are key members of the Research Committee and provide an important communication platform for early career researchers to voice their thoughts with the Society.

## **Training**

During 2022, the Society delivered 32 courses covering a range of OR topics, attracting a total of 210 delegates. The ongoing impact of the coronavirus pandemic continued to affect take up of the training offer, and as a result, all courses were run virtually. We thank our pool of excellent tutors for the continuing adoption of virtual delivery methods.

A new administration platform for our training programme went live shortly before the end of the 2021 and we continue to benefit from the improvements this brings to the delegate journey from discovery through to booking.

## Publicity and Membership

We held our first focus group with members early in the year, and used the output to inform the survey. This went live, but the response rate was disappointingly low at of 155 (4.5% of members). From the responses, we could see that academics largely valued journals. For practitioners, the range was broader, but the common themes were keeping up to date and making connections with other people. There was low value placed on supporting charitable aims, which may be an area for greater consideration. For the first time we also followed up by interviewing a small number of 'detractors', but the main point of note here was that they were sole workers who did not have a wider group to recommend the society to.

Our fees have been reviewed again. Given our relatively low rates vs similar societies and the unusually high rates of inflation, we have considered higher increases than previously, whilst keeping us below inflation. Discussion around the frequency of Inside OR is ongoing, with a proposal to reduce this to every two months under consideration. We are seeking to find a balance between the relatively low readership numbers and high cost, but the high value that those readers do place on the magazine.

Work on the overall membership strategy has been on hold with the departure of the Head of Membership Experience and the changeover of the Executive Director. We plan to have a strategy reset in 2023, agreeing on a set of more focussed actions that will deliver the most value, with clear accountability, prioritisation for staff and alignment to the OR Society strategy. The various ideas and suggestions that have been collated over the last year will be assessed on this basis.

## Pro Bono OR

Pro Bono OR's dedicated volunteers worked on 15 projects throughout the year, using a variety of OR, analytics and data science methods to help third sector organisations tackle issues such as preventing homelessness, preventing child abuse, and supporting food banks and children experiencing bereavement. Feedback from the organisations and volunteer analysts has remained positive.

Feedback from our volunteer prize draw winner:

*"For me personally, I got a great deal of satisfaction from knowing that I was able to lend my skills and knowledge to a small charity that increasingly needs to find ways to make their funding go further. By helping Porchlight to improve the efficiency of their call centre and understand which services use the most resource, I have been able to equip them with information that will help them bid for funding, and know what services they can offer to Kent's homeless and vulnerable people."*

Feedback from some of the organisations Pro Bono volunteers supported in 2022:

*"This has given us the groundwork and the impetus to begin implementing a demand and capacity management programme for our Crisis Response services."*

*"The consultant was focused, speedy, responsive and very helpful."*

*"With grateful thanks to Louise for your excellent account management and support throughout."*

15 projects in 2022 is in line with our 2021 achievements, but is below pre-pandemic figures. The Pro Bono Manager has heard from several charities that they are interested in working with us but don't have capacity at this time to undertake a Pro Bono OR project. While COVID-19 is having a smaller impact on organisations than in previous years, the cost-of-living crisis / sharp rise of inflation in 2022 has continued to put pressure on third sector organisations and their end users.

The Pro Bono OR scheme was managed by Louise Allison until November 2022 when she resigned. Louise was replaced by Eve Hardy in late January 2023. Eve has previously worked for The OR Society as Education Manager and is very happy to have returned.

The Steering Group is chaired by Ruth Kaufman and at the end of 2022 the group consisted of: Jane Parkin, Graham Rand, Ian Seath, Shamim Rahman, Mike Boyles, Owen Bowden, Kate Hammond, John Lincoln, Ashleigh Monks and Hugo Herrera. Hugo was recruited as a representative of The OR Society's General Council to increase the range of perspectives and ideas on the Steering Group.

In 2022, Louise worked with the Steering Group to amend Pro Bono OR admin processes, and the information we collect from both volunteers and third sector organisations working with us. This improves both sides of the Pro Bono OR 'user experience' and will also provide better insights and data for the Steering Group to make use of in future. There are a number of other initiatives and ideas put forwards by the Steering Group in 2022 that we are currently taking forward and aim to implement in 2023 or early 2024.

Pro Bono OR participated in the annual Volunteers' Week (1-7 June). It's an opportunity to celebrate the work that volunteers do and to thank them. In doing so, we showcase projects that volunteers have worked on, share quotes from third sector organisations and volunteers, and promote the benefits of the Pro Bono OR scheme for both volunteers and third sector organisations.

## Members, Affiliates and Fellows

At the end of the year, The OR Society had 3,731 members. The Analytics Network boasted 2,148 members, the Society's LinkedIn group had 6,012 members and we had 6,207 Twitter followers. In addition, there were 17 corporate partners – CORDA (part of BAe Systems), Natwest Group, Ministry of Justice, Home Office, Dept for Work & Pensions, AWE, Office for National Statistics, Ministry of Defence, NHS Wales, The Smith Institute, TP Group, Linnaeus University (Sweden), HM Land Registry, HMRC, Scottish Government, Dept for Digital Culture Media and Sport, and Dept for Levelling Up Housing and Communities– representing 835 affiliates.

There were 375 accreditees, comprising 164 Fellows, 73 Associate Fellows, 52 Associates and 86 Candidate Associates. There were 26 members accredited as Chartered Scientists and one as a Registered Scientist.

## Awards

- **Goodeve Medal** (awarded for best paper published in *JORS* in 2021): Awarded to Giuseppe Bruno, Manuel Cavola, Antonio Diglio, Gilbert Laporte and Carmela Piccolo "Reorganizing postal collection operations in urban areas as a result of declining mail volumes – A case study in Bologna.", *Journal of The Operational Research Society* (2021) 72, 1591-1606.
- **Stafford Beer Medal** (awarded for best paper published in *EJIS* in 2021): Awarded to Andre Hanelt, Sebastian Firk, Bjoern Hilebrant and Lutz M. Kolbe "Digital M&A, digital innovation, and firm performance: an empirical investigation.", *European Journal of Information Systems*, 30 3-26.
- **Cook Medal** (awarded for best paper published in *KMRP* in 2020/2021): Awarded to Cameron Guthrie "Knowledge worker fitness in the workspace: self-managing at the edge of chaos.", *Knowledge Management Research & Practice* 19 181-196.
- **Ranyard Medal** (awarded for best paper published in *JBA* in 2020/2021): Awarded to Shylu John, Bhavin Shah, Varun Dixit and Amol Wani "An integrated approach to renew software contract using machine learning.", *Journal of Business Analytics*, 4 14-25.
- **Doctoral Award** (awarded for the most distinguished body of research leading to the award of a doctorate in the field of OR in 2021): Awarded to Glory Alozie, University of Strathclyde, "The Distance-Based Critical Node Detection Problem: Models and Algorithms".
- **President's Medal** (awarded for the best practical application of OR): Awarded to Ekaterina Arafailova, Francesco Bucci, Tim Butler, George Dikas, Sivaji Doguparthi, Ramon Fuentes, Ross Hart, Akshay Kishan, Can Kocer, Aleksandar Kolev, Sebastian Lautz, Stephen Logan, Fabio Milano, Edwin Reynolds, Himanshu Singh, Stephen Spurri, Hamish Teagle, Benjamin White and Da Wei Wong (Tesco) for "Clearance Pricing Optimisation for UK's Largest Supermarket".
- **Lyn Thomas Impact Medal** (awarded annually for the academic OR research which best demonstrates both novelty and real-world impact): Awarded to Navonil Mustafee, John H. Powell, Alison Harper, Todd R Kaplan, Surajeet Chakravarty, Susan Martin and Andrew Fordyce (University of Exeter Business School and South Devon & Torbay NHS Foundation Trust).
- **Companionship of OR** (awarded for sustained support and encouragement for the development of operational research or for those in influential positions who are in broad sympathy with the subject area): Awarded to Janet Williams.

### Structure of the Funds

The Society presents its funds as split between unrestricted and restricted funds.

The unrestricted elements make up the majority of its funds and covers:

- ongoing operations (previously categorised as the General fund); and
- the Seymour House property together with investments and cash on deposit to cover potential risks of a general nature, the most significant of which would arise if the Society were forced to move quickly to a financial regime in which its publications income was significantly reduced (previously labelled the Reserve Fund).

The restricted funds represent a bequest received from Mrs May Hicks in 2002 and which is used for purposes consistent with her wishes, by providing awards for the best student OR projects undertaken for a client organisation.

### Review of Operations

The Society's income and expenditure account showed a small surplus (before any net gains or losses on investments) of £17k during the year, on a turnover of £1.53m. This compares with a surplus of £79k in 2021.

The performance is gratifying considering the ongoing global turmoil caused by the war in Ukraine. Income for the year was up over £150k compared to 2021, getting back to pre-pandemic levels. Events and Conferences income rose by £20k, with a return to in-person activity, although delegates numbers were still suppressed with some COVID concerns or restrictions still evident. The transition to the 'new normal' is certainly taking longer than anticipated. The success of the annual conference does give some hope that face-to-face meetings and events are on the upward path.

Training income held up well despite the first cohort commencing on the OR Specialist apprenticeship scheme. The vast majority of course were delivered online. The Society continued to benefit from the cost savings associated with the staff working from home for a significant proportion of the week and holding all meetings virtually.

The publications income reached record levels, with our publishing partners, Taylor & Francis, continuing to build the strength of our journal portfolio. Two significant milestones were reached in the year: downloads of papers from the portfolio exceed 1 million, and that resulted in income breaking the £1m barrier too. The existing contract with Taylor & Francis came to an end in 2022 but a contract extension was signed through until 2026. The conclusion of negotiations of the contract extension was a good outcome for both parties. The rise of open access publishing is certainly increasing the uncertainty and risk for both the Society and its publisher. The Society is not only working on converting its existing journals to open access, but considering adding a new OA title to its portfolio.

Most operations to support the charitable aims of the Society – such as conferences, special events, regional societies, special interest groups, education, publicity and outreach initiatives, the monthly *Inside OR* magazine and special charitable projects – result in deficits to the Society. To support them the Society relies primarily on subscriptions and income from its academic journals – particularly the latter which in 2022 contributed over £800k net of all associated costs. This serves as a reminder of the Society's current financial dependence on the academic publication system; see the section on 'Risk' below.

The Society employed 17.7 members of staff during 2022 (averaged over the year, 16.6 full-time-equivalents), compared to 18.3 (16.8 FTE) during 2021.

### **Assets, Reserves and Investments**

The total net assets of the Society fell by almost £275k to £2.38m over the year, with the small surplus on income and expenditure being dwarfed by a substantial decrease in investment values and a net £290k capital loss (realised and unrealised) on our investment funds. This reflects the markets' continued turbulence due to global events such as the war in Ukraine. Prudent financial management of its cash resources meant the Society did not need to draw down any of its investment funds during the year, allowing the recovery to take begin.

It is important that the Society maintains an appropriate level of reserves in relation to perceived financial risks. Based on the usual annual costs of running the Society, one year's costs of £900k should be a minimum value for the reserves and the maximum value would then be three years' costs giving a value of £2.7 million. This would cover any growth of the Society over the next few years and release funds to further the Society's aims.

The Society's reserves, with a definition slightly widened from previous years, cover funds which are neither restricted nor designated, less illiquid assets (such as tangible fixed assets). At 31 December 2022, this amounted to £2.1m. The reserves are therefore within their prescribed limits. The Board will bear this in mind when considering opportunities for spending on worthwhile one-off projects that further the Society's objectives.

The Society's investments and their performance are kept under review by the Investment Committee in accordance with policies decided by the Board. The Committee is chaired by the Treasurer and, in addition to other members of the Society, includes representatives from the Society's investment managers.

### **Principal Risks and Uncertainties**

The Society's dependency on journal income is the most significant material risk. Our new contract with Taylor & Francis to a large extent mitigates this risk for the Society, for the four years of the contract (finishing in December 2026), by transferring some of it to the publisher. The risk has not disappeared though, and we could never be wholly insulated from any impact that might result from this risk on our publisher. The publications market will be rapidly adapting to the demands of open access over the course of the new contract and this element of income remains at risk.

Work on diversification of revenue streams continues. Apprentices have started work towards the Operational Research specialist level 7 standard which will provide a new source of income from 2024 onwards. However, the costs associated with applying for and subsequently acting as an End Point Assessment Organisation are higher than anticipated since the requirements have tightened considerably under the switch to Ofqual's oversight. Education committee are progressing with options for offering degree course accreditation.

The key strategic risk that OR could be seen as less relevant in the competitive analytics, data science and AI space remains. We have been mitigating this through a number of initiatives led by our Analytics Development Group and are also actively promoting the relevance of OR to data science, robotics and artificial intelligence as well as other overlapping fields. The Government and society's attitude towards mathematical education, understanding statistics and probabilities seem to be in our favour. More generally, we aim to raise the visibility of OR and support outward-looking practice and membership through outreach to other professional societies and to organisations and businesses who may benefit from what OR has to bring and through the variety of topics and speakers at our events.

A further key risk is that The OR Society could be seen as less relevant to OR professionals. We have been mitigating this through the whole range of activities addressing our strategic goals and described elsewhere in this report.

The cost-of-living crisis is an issue for our members (their ability to afford membership, training, events etc.) and the Society's operations itself. A full assessment of the susceptibility of our operations and each P&L line item to inflationary pressures. The modelling ensured that the Board understood the risks and sensitivity of revenue and costs, enabling better informed decisions.

The Board regularly reviews the risk register covering a wide range of operational risks, including IT risks, and, where feasible, puts mitigating action in place.

### **Key Management Personnel**

The Key Management Personnel for the Society comprise the trustees (its Board of Directors) and the Executive Director. No remuneration is payable to trustees for service on the Board.

### **Basis for Remuneration**

The Society's Finance committee agree and implement the policy for salary increases at its meeting in November each year. Price inflation, indicated primarily by the Consumer Prices Index (CPI), is the key factor. The committee use the figure released in September each year as its benchmark. In addition, they also consider national and regional statistics on movements in average earnings, together with the specific market rates for roles similar to those undertaken in the office. The financial situation of the Society is another important factor.

The President, Treasurer and President Elect or Immediate Past President review the Executive Director's salary and, when agreed by Finance Committee, a written recommendation is made to Board. The Executive Director leads the process for other staff which is again initially discussed by Finance Committee before the recommendations go to Board for final approval.

### ***Voluntary Contributions***

The Society's work in 2022 benefited from voluntary contributions of time, from members and others, through these principal lines of work: refereeing of journal papers; editing of journals; conference organisation; authorship and delivery of talks to regional societies and special interest groups; organisation of regional societies and special interest groups; the work of the Society's officers; contributions to the administration of the Society, its Awards and its accreditations through service on Board and the Society's committees.

The coronavirus pandemic has meant that some of the usual volunteering opportunities have been unable to take place. The Society is delighted in the way its pool of volunteers has responded to the switch to online activities where this has been possible, especially with our two main outreach projects, OR in Schools and Pro Bono OR. Their work benefits the OR community, the future development of the profession and the wider society and is a fine contribution to The OR Society's charitable objectives.

It is estimated that a total of 4,000 person-days were contributed in 2022. If this time is valued at £500 per day, its value is £2M. The Society is most grateful to all who contributed voluntary effort, without which the Society could not accomplish its goals.



## ***Fundraising***

The OR Society does not engage in public fundraising activities by professional fundraisers or commercial participators. The charity has not received any fundraising complaints in the year.

## ***Related Parties***

The Society is a member of EURO, the Association of European Operational Research Societies, and IFORS, the International Federation of Operational Research Societies. It shares information and works closely with other operational research societies around the world, particularly its counterpart in the USA, INFORMS. The Society pays membership fees to both EURO and IFORS.

The Society is also a member of the Council for Mathematical Sciences, CMS. It works with the other member bodies (Institute for Mathematics & its Applications, London Mathematical Society, Royal Statistical Society and Edinburgh Mathematical Society) on relationships to research funding bodies, relevant consultations and various other initiatives. Currently this includes the development of plans for a national academy for mathematical sciences.

The Society's related party transactions for the year ended 31 December 2022 have been disclosed in note 8 of the financial statements.

# Objectives for 2023

At the start of 2021, Board produced a revised version of its 3-5 year goals and priorities. These build on those in place for the previous strategic planning phase and represent exciting opportunities for the Society and the wider OR community. The revised strategic pillars are to: raise awareness of the **importance of OR**; support **OR knowledge development**; support **OR education**; grow **membership and wider reach**; ensure **financial sustainability** of the Society; and address **diversity and inclusion challenges** in OR and the OR Society.

Work has already started on many of the initiatives that we hope will come to fruition in the next year or so:

- launch celebrations for the Society's 75<sup>th</sup> anniversary, capitalising on the opportunities to raise awareness of both the Society and operational research;
- working with Taylor & Francis to capitalise on its strategy to maximise the value of our current publications contract, develop robust publishing models to deal with opportunities and challenges presented by open access publishing and Plan S;
- ensuring that OR continues to be fully involved in the establishment of the Academy for Mathematical Sciences;
- building policy influence with key Government contacts and connect with other key decision makers;
- implementing an engagement plan for the analytics / artificial Intelligence /data science community, and specifically implementing the recommendations of the artificial intelligence task-and-finish group;
- supporting the continued growth of the Women in OR and Early Careers networks;
- maximising benefit from the website, social media campaigns and other marketing activity to raise the brand profile of OR itself;
- capitalising on its museum-based travelling exhibition to raise public awareness of OR;
- progress its bid to come an End point Assessment Organisation and further support the uptake of the level 7 OR apprenticeship scheme for OR Specialist;
- strengthening relationship with key bodies such UKRI, Royal Society, Science Council and other learned societies;
- investigating diversification of income, including exploring new streams (accrediting University courses, fundraising / donations, sponsorship);
- implementing our diversity plan based on recommendations from the diversity champion;
- creating and disseminating thought leadership pieces (with the initial focus on ethics);
- demonstrating the relevance of OR to complex problems and big issues.

These developments will be on top of our existing broad sweep of services: conferences, events, lectures and training; publications; Pro Bono OR and OR in Schools; representing The OR Society on bodies including The Council for Mathematical Sciences, the Science Council, EURO and IFORS; and our more inward-looking activities to improve sustainability, efficiency and effectiveness.

For a relatively small professional body in an uncertain world, there are many challenges to overcome. By undertaking these activities, we aim not just to meet the challenges, but to grow the profession and The OR Society's contribution and make the most of the opportunities awaiting us.

# Information about the Society

- (1) The Operational Research Society is a company limited by guarantee (no. 663819). It is also a charity registered in accordance with the provisions of the Charities Act 2011 (registration no. 313713)
- (2) The objects of the Society are given in its Memorandum and Articles and can be summarised as:
  - (a) the advancement of knowledge by fostering, promoting and furthering interest in operational research; and
  - (b) the advancement of education by providing facilities for and, by subsidising it, endowing, organising or supporting scholarships or educational or training schemes; and conducting examinations or advising on their content.
- (3) The Society is empowered to do all proper things in pursuit of these objectives.
- (4) The affairs of the Society were managed during 2022 by the elected officers and members of the Board listed below. Together they constitute the Board of Directors of the limited company and Trustees of the charity and the members of its management committee. Specific matters are delegated to particular committees of the Society by resolution of the Board and in accordance with the Society's Articles.

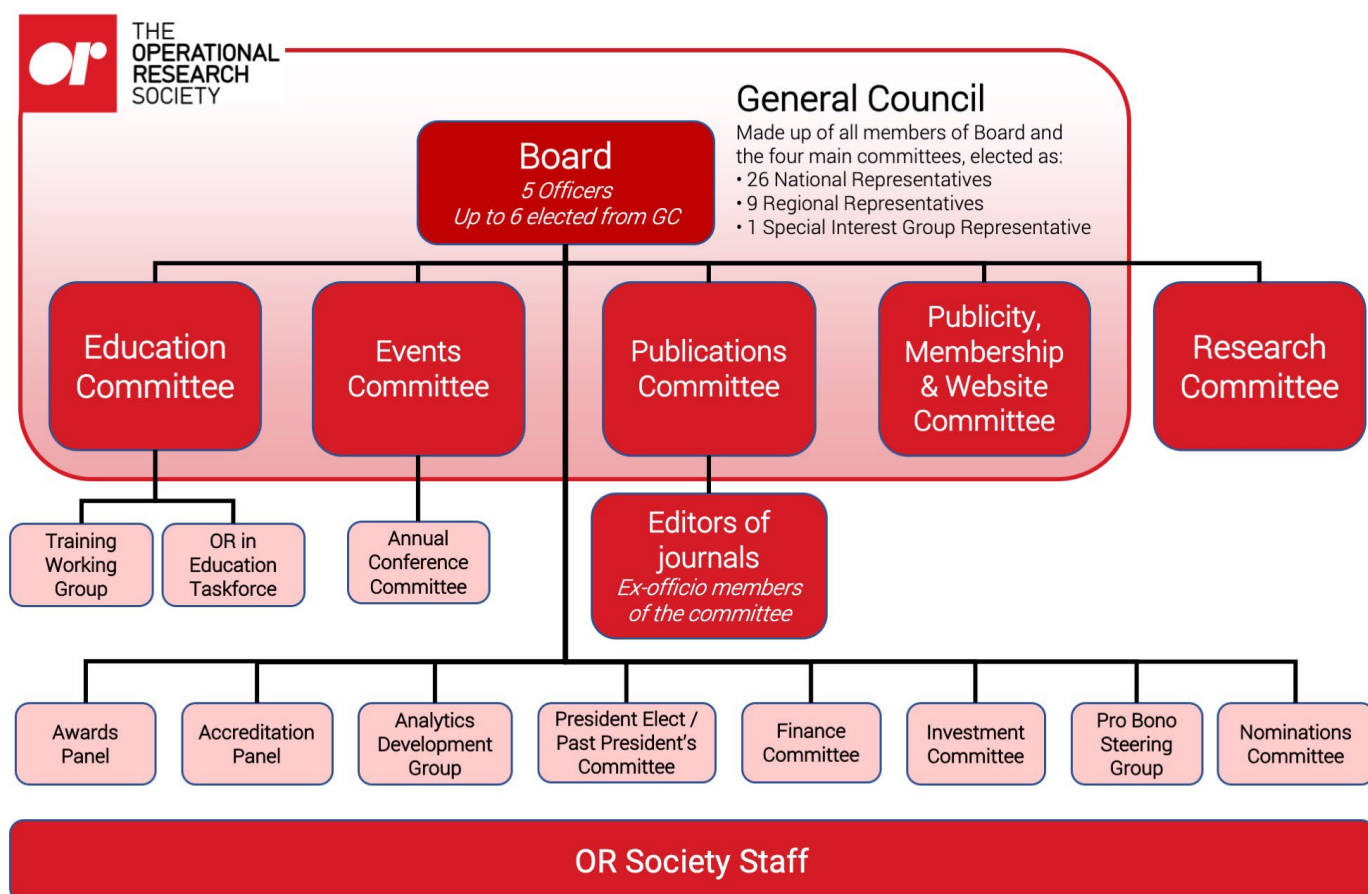
The following served as members of the Board in 2022

|                             |               |        |
|-----------------------------|---------------|--------|
| E K BURKE President         | T W ARCHIBALD | V SENA |
| G OWUSU President Elect     | R BYDE        |        |
| A C PAGEL Vice President    | J MEDHURST    |        |
| A P ROBINSON Vice President | N MORRILL     |        |
| R A SCOTT Hon. Treasurer    | C J PHILLIPS  |        |

Unless otherwise stated, changes in the membership of the Board occur at the end of a calendar year.

The Board is supported by a General Council with a maximum membership of thirty-six. These two bodies assist the Society in its ongoing commitment to involve as many members as possible in its affairs. The Board of Directors is responsible for governance and strategy and the General Council, with its wide representation, provides advice, feedback and challenge and monitors the Board's activity. Members of General Council have also, in all cases, been assigned to one of the Society's four main committees: Publications; Publicity, Membership and Website; Education and Research; and Events and the Chairs of those committees are currently Board members.

The structure is set out in the diagram below.



(5) The committees are established to implement policies of Board & General Council with respect to meeting the Society's objectives and to controlling expenditure. The names of the committees are set out as follows, together with the object ((a) or (b) as above) towards the achievement of which they contribute:

|                                    |  |
|------------------------------------|--|
| Accreditation Panel                | (a)  |
| Analytics Development Group        | (a)  |
| Awards Panel                       | (a)  |
| Education                          | (b)  |
| Events                             | (a), (b)                                     |
| Finance                            | Management of financial aspects              |
| Investment                         | Management of investments                    |
| Nominations                        | Volunteer recruitment to governance roles    |
| Past President's/President Elect's | Elections, planning & administrative reviews |
| Pro Bono Steering Group            | (a)  |
| Publications                       | (a)  |
| Publicity, Membership & Website    | (a)  |
| Research                           | (a)  |
| Training Working Group             | (b)  |

(6) Other Committees are set up from time to time for specific purposes, but they are given no delegated powers. In addition, the Society has a large number of active Special Interest Groups which are listed in the Journal of the Society. They contribute particularly to object (a).

(7) The registered address of the Society is:

Seymour House  
12 Edward Street  
BIRMINGHAM  
B1 2RX

Its Executive Director is:

I G Blackett  
The OR Society  
12 Edward Street  
BIRMINGHAM  
B1 2RX

Its Bankers are:

The Co-operative Bank  
Delf House  
Southway  
SKELMERSDALE  
WN8 6WT

Its Solicitors are:

Sydney Mitchell and Co  
Cavendish House  
Waterloo Street  
BIRMINGHAM  
B2 5PU

Its Auditors are:

Sayer Vincent LLP  
Invicta House  
108-114 Golden Lane  
LONDON  
EC1Y 0TL

Its Investment Adviser is:

Tom Quicke  
Investec  
30 Gresham Street  
LONDON  
EC2V 7QN

Its Stockbrokers are:

Investec  
30 Gresham Street  
LONDON  
EC2V 7QN

(8) The Society's investment policy is governed by the legislative provisions relating to charity investments, but the Society is not otherwise restricted in the way in which it can invest. However, it is the Society's policy not to invest in tobacco shares.

(9) These particulars are published in compliance with Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) (effective 1 January 2019).

## Appointment of trustees

The officers and other members of the Board are elected by secret ballot of the Society's membership and the members of General Council respectively, to serve for a three-year term (except for the President, who serves one year as President-Elect, two years as President and a further year as Immediate Past-President). A member of the Board, other than the President, whose first term of office has expired may stand for election for one further term. At the end of 2022, one member of the Board completed his term of office: A P ROBINSON.

## Induction of new trustees

New trustees receive a comprehensive information pack, setting out details of their role and responsibilities as both trustees and company directors, the nature of a charity, the Society's constitution, its policies on members' interests and expense claims and including the Charity Commission's 'welcome' leaflet.

# Public Benefit

The OR Society is a charity and meets the public benefit test as set out in the Charities Act 2011 in various ways:

## **Advancement of education:**

Through the OR in Schools initiative, its many networking, training and conferencing activities in schools, universities and workplaces and extensive on-line resources, The OR Society promotes the understanding of OR and how it can be applied for the wider benefit. The OR Society is a participating society (with voting rights) on the Joint Mathematical Council of the UK.

## **Advancement of science:**

Through its publications, conferences and networking activities; representation on the Council for Mathematical Sciences, Science Council, funding bodies and international federations; and on-line materials and facilities, The OR Society supports, promotes and publicises research; raises standards of research and practice; and promotes the effective application of OR for wider social benefit. Through its accreditation and awards schemes, The OR Society recognises and promotes engagement, effectiveness and development in its members, further raising standards.

## **Advancement of community development:**

The OR Society encourages volunteering and involvement through its Pro Bono OR initiative, involvement of members in outreach to schools and universities and networks of Regional and Special Interest Groups.

The OR Society funds educational, development and research projects that are in line with its charitable aims of advancing knowledge and education through fostering OR

All OR Society events and training are open to all who may be interested. In addition, it minimises barriers to access by:

- (1) ensuring that many of its on-line resources are publicly and freely available;
- (2) keeping membership fees low and offering reduced fees for unwaged groups; and
- (3) supporting Regional and Special Interest Group networks which offer free meetings.

In governing The OR Society, the Trustees have had regard to the Charity Commission's public benefit guidance.

# Statement of responsibilities of the elected officers and members of the Board

The trustees (who are also directors of The Operational Research Society for the purposes of company law) are responsible for preparing the trustees' annual report and the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice).

Company law requires the trustees to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the charitable company and of the incoming resources and application of resources, including the income and expenditure, of the charitable company for that period. In preparing these financial statements, the trustees are required to:

- Select suitable accounting policies and then apply them consistently;

- Observe the methods and principles in the Charities SORP;
- Make judgements and estimates that are reasonable and prudent;
- State whether applicable UK Accounting Standards and statements of recommended practice have been followed, subject to any material departures disclosed and explained in the financial statements; and
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charity will continue in operation.

The trustees are responsible for keeping adequate accounting records that disclose with reasonable accuracy at any time the financial position of the charitable company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

In so far as the trustees are aware:

- There is no relevant audit information of which the charitable company's auditor is unaware; and
- The trustees have taken all steps that they ought to have taken to make themselves aware of any relevant audit information and to establish that the auditor is aware of that information.

The trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

## **Members' interests**

In accordance with Article 46 of its constitution, the Society requires that members of Board or committees having an interest in a matter to be debated should declare that interest and leave the room whilst the matter is discussed and decided. Members of the Training Working Group are drawn from organisations which have no interest in bidding for courses and wherever appropriate, recommendations on major charitable projects are made by a special expert committee comprised entirely of disinterested parties.

# Approval of report

We approve this report and the audited accounts for the year 1 January to 31 December 2022 and recommend their adoption by the Society at its Annual General Meeting.

G OWUSU President

R A SCOTT Hon Treasurer

T W ARCHIBALD

E K BURKE

R BYDE

S LORRIMER

J MEDHURST

N MORRILL

A C PAGEL

C J PHILLIPS

V SENA

Being the elected officers and members of the Board of The Operational Research Society as at 18 May 2023.

S Hargreaves

Executive Director

18 May 2023



# Accounts

for the year ended 31 December 2022

## INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF OPERATIONAL RESEARCH SOCIETY

### Opinion

We have audited the financial statements of Operational Research Society (the 'charitable company') for the year ended 31 December 2022 which comprise the statement of financial activities, balance sheet, statement of cash flows and notes to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- Give a true and fair view of the state of the charitable company's affairs as at 31 December 2022 and of its incoming resources and application of resources, including its income and expenditure for the year then ended
- Have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice
- Have been prepared in accordance with the requirements of the Companies Act 2006

### 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 are independent of the charitable company in accordance with the ethical requirements that are 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. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Conclusions relating 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 Operational Research Society'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 other information comprises the information included in the trustees' annual report, other than the financial statements and our auditor's report thereon. The trustees are responsible for the other information contained within the annual report. 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 course of 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 this gives rise to a material misstatement in the financial statements themselves. 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.

### **Opinions on other matters prescribed by the Companies Act 2006**

In our opinion, based on the work undertaken in the course of the audit:

- The information given in the trustees' annual report, for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- The trustees' annual report has been prepared in accordance with applicable legal requirements.

### **Matters on which we are required to report by exception**

In the light of the knowledge and understanding of the charitable company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' annual report. We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 requires us to report to you if, in our opinion:

- Adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- The financial statements are not in agreement with the accounting records and returns; or
- Certain disclosures of trustees' remuneration specified by law are not made; or
- We have not received all the information and explanations we require for our audit; or
- The directors were not entitled to prepare the financial statements in accordance with the small companies' regime and take advantage of the small companies' exemptions in preparing the trustees' annual report and from the requirement to prepare a strategic report.

### **Responsibilities of Trustees**

As explained more fully in the statement of trustees' responsibilities set out in the trustees' annual report, the trustees (who are also the directors of the charitable company for the purposes of company law) 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 determine 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 charitable company'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 charitable company or to cease operations, or have no realistic alternative but to do so.

### **Auditor's responsibilities for the audit of the financial statements**

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.

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 are set out below.

### **Capability of the audit in detecting irregularities**

In identifying and assessing risks of material misstatement in respect of irregularities, including fraud and non-compliance with laws and regulations, our procedures included the following:

- We enquired of management and the finance committee, which included obtaining and reviewing supporting documentation, concerning the charity's policies and procedures relating to:
  - Identifying, evaluating, and complying with laws and regulations and whether they were aware of any instances of non-compliance;
  - Detecting and responding to the risks of fraud and whether they have knowledge of any actual, suspected, or alleged fraud;
  - The internal controls established to mitigate risks related to fraud or non-compliance with laws and regulations.
- We inspected the minutes of meetings of those charged with governance.
- We obtained an understanding of the legal and regulatory framework that the charity operates in, focusing on those laws and regulations that had a material effect on the financial statements or that had a fundamental effect on the operations of the charity from our professional and sector experience.
- We communicated applicable laws and regulations throughout the audit team and remained alert to any indications of non-compliance throughout the audit.
- We reviewed any reports made to regulators.
- We reviewed the financial statement disclosures and tested these to supporting documentation to assess compliance with applicable laws and regulations.
- We performed analytical procedures to identify any unusual or unexpected relationships that may indicate risks of material misstatement due to fraud.
- In addressing the risk of fraud through management override of controls, we tested the appropriateness of journal entries and other adjustments, assessed whether the judgements made in making accounting estimates are indicative of a potential bias and tested significant transactions that are unusual or those outside the normal course of business.

Because of the inherent limitations of an audit, there is a risk that we will not detect all irregularities, including those leading to a material misstatement in the financial statements or non-compliance with regulation. This risk increases the more that compliance with a law or regulation is removed from the events and transactions reflected in the financial statements, as we will be less likely to become aware of instances of non-compliance. The risk is also greater regarding irregularities occurring due to fraud rather than error, as fraud involves intentional concealment, forgery, collusion, omission or misrepresentation.

A further description of our responsibilities is available on the Financial Reporting Council's website at: [www.frc.org.uk/auditorsresponsibilities](http://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 charitable company's members as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the charitable company's members 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 charitable company and the charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Fleur Holdon  
Senior statutory auditor  
Date

for and on behalf of  
Sayer Vincent LLP  
Statutory Auditor  
Invicta House  
108-114 Golden Lane  
LONDON  
EC1Y 0TL

# The Operational Research Society

## Statement of financial activities (incorporating an income and expenditure account)

For the year ended 31 December 2022

|  | Note | Unrestricted<br>£ | Restricted<br>£ | 2022<br>Total<br>£ | Unrestricted<br>£ | Restricted<br>£ | 2021<br>Total<br>£ |
|--|------|-------------------|-----------------|--------------------|-------------------|-----------------|--------------------|
| <b>Income from:</b>  |      |                   |                 |                    |                   |                 |                    |
| Charitable activities  |      |                   |                 |                    |                   |                 |                    |
| Subscriptions  | 2    | 147,613           | –               | <b>147,613</b>     | 147,642           | –               | 147,642            |
| Events and Conferences   | 2    | 155,501           | –               | <b>155,501</b>     | 131,120           | –               | 131,120            |
| Training   | 2    | 107,753           | –               | <b>107,753</b>     | 105,192           | –               | 105,192            |
| Publications   | 2    | 1,060,539         | –               | <b>1,060,539</b>   | 941,755           | –               | 941,755            |
| Accreditation  | 2    | 8,803             | –               | <b>8,803</b>       | 8,679             | –               | 8,679              |
| Websites / Digital Services  | 2    | 6,271             | –               | <b>6,271</b>       | 1,080             | –               | 1,080              |
| Investments  | 3    | 41,585            | 2,565           | <b>44,150</b>      | 42,082            | 2,130           | 44,212             |
| <b>Total income</b>  |      | <b>1,528,065</b>  | <b>2,565</b>    | <b>1,530,630</b>   | <b>1,377,550</b>  | <b>2,130</b>    | <b>1,379,680</b>   |
| <b>Expenditure on:</b>   |      |                   |                 |                    |                   |                 |                    |
| Raising funds  | 4    | 12,439            | –               | <b>12,439</b>      | 13,145            | –               | 13,145             |
| Charitable activities  |      |                   |                 |                    |                   |                 |                    |
| Subscriptions  | 4    | 143,682           | –               | <b>143,682</b>     | 137,599           | –               | 137,599            |
| Events and Conferences   | 4    | 358,719           | –               | <b>358,719</b>     | 227,392           | –               | 227,392            |
| Training   | 4    | 113,932           | –               | <b>113,932</b>     | 105,501           | –               | 105,501            |
| Apprenticeships  | 4    | 3,186             | –               | <b>3,186</b>       | 2,000             | –               | 2,000              |
| Publications   | 4    | 297,509           | –               | <b>297,509</b>     | 280,778           | –               | 280,778            |
| Accreditation  | 4    | 16,793            | –               | <b>16,793</b>      | 15,598            | –               | 15,598             |
| Websites / Digital Services  | 4    | 186,898           | –               | <b>186,898</b>     | 182,215           | –               | 182,215            |
| Other Charitable expenditure   | 4    | 380,630           | –               | <b>380,630</b>     | 334,506           | 1,500           | 336,006            |
| <b>Total expenditure</b>   |      | <b>1,513,788</b>  | <b>–</b>        | <b>1,513,788</b>   | <b>1,298,733</b>  | <b>1,500</b>    | <b>1,300,233</b>   |
| <b>Net income / (expenditure) before net gains / (losses) on investments</b> |      | <b>14,277</b>     | <b>2,565</b>    | <b>16,842</b>      | <b>78,817</b>     | <b>630</b>      | <b>79,447</b>      |
| Net gains / (losses) on investments  |      | <b>(277,025)</b>  | <b>(13,457)</b> | <b>(290,482)</b>   | <b>180,088</b>    | <b>(3,604)</b>  | <b>176,484</b>     |
| <b>Net income / (expenditure) for the year</b>                               |      | <b>(262,748)</b>  | <b>(10,892)</b> | <b>(273,640)</b>   | <b>258,905</b>    | <b>(2,974)</b>  | <b>255,931</b>     |
| Transfers between funds  |      | –                 | –               | –                  | (14,600)          | 14,600          | –                  |
| <b>Net movement in funds</b>   |      | <b>(262,748)</b>  | <b>(10,892)</b> | <b>(273,640)</b>   | <b>244,305</b>    | <b>11,626</b>   | <b>255,931</b>     |
| <b>Reconciliation of funds:</b>  |      |                   |                 |                    |                   |                 |                    |
| Total funds brought forward  |      | 2,577,965         | 73,348          | <b>2,651,313</b>   | 2,333,660         | 61,722          | 2,395,382          |
| <b>Total funds carried forward</b>   |      | <b>2,315,217</b>  | <b>62,456</b>   | <b>2,377,673</b>   | <b>2,577,965</b>  | <b>73,348</b>   | <b>2,651,313</b>   |

All of the above results are derived from continuing activities. There were no other recognised gains or losses other than those stated above. Movements in funds are disclosed in Note 18 to the financial statements.

# The Operational Research Society

## Balance sheet

Company no. 00663819

As at 31 December 2022

|  | Note   | £         | 2022<br>£        | £                | 2021<br>£        |
|--|--------|-----------|------------------|------------------|------------------|
| <b>Fixed assets:</b>                           |        |           |                  |                  |                  |
| Tangible assets                                | 10     |           | 216,835          |                  | 238,365          |
| Intangible assets                              | 11     |           | –                |                  | 43,097           |
| Investments                                    | 12     |           | 1,762,536        |                  | 2,024,494        |
|  |        |           | <u>1,979,371</u> |                  | <u>2,305,956</u> |
| <b>Current assets:</b>                         |        |           |                  |                  |                  |
| Debtors  | 13     | 380,303   |                  | 212,295          |                  |
| Cash at bank and in hand                       |        | 224,469   |                  | 305,327          |                  |
|  |        |           | <u>604,772</u>   | <u>517,622</u>   |                  |
| <b>Liabilities:</b>                            |        |           |                  |                  |                  |
| Creditors: amounts falling due within one year | 14     | (206,470) |                  | (172,265)        |                  |
|  |        |           |                  |                  |                  |
| <b>Net current assets</b>                      |        |           | <u>398,302</u>   |                  | <u>345,357</u>   |
| <b>Total net assets</b>                        |        |           | <u>2,377,673</u> |                  | <u>2,651,313</u> |
| <br><b>The funds of the charity:</b>           | <br>17 |           |                  |                  |                  |
| Restricted Funds                               |        | 62,456    |                  | 73,348           |                  |
| Unrestricted Funds                             |        | 2,315,217 |                  | 2,577,965        |                  |
|  |        |           | <u>2,377,673</u> | <u>2,651,313</u> |                  |
| Total unrestricted and restricted funds        |        |           | <u>2,377,673</u> | <u>2,651,313</u> |                  |
| <b>Total charity funds</b>                     |        |           | <u>2,377,673</u> | <u>2,651,313</u> |                  |

Approved by the trustees on XXXX and signed on their behalf by

R. A. Scott  
Honorary Treasurer

E. K. Burke  
President

Statement of cash flows

For the year ended 31 December 2022

|   | 2022<br>£                 | £               | 2021<br>£                      | £               |
|---|---------------------------|-----------------|--------------------------------|-----------------|
| <b>Cash flows from operating activities</b>   |                           |                 |                                |                 |
| Net (expenditure)/income for the reporting period<br>(as per the statement of financial activities) | (273,640)                 |                 | 255,931                        |                 |
| Depreciation and amortisation charges   | 68,962                    |                 | 72,252                         |                 |
| Losses/(gains) on investments   | 290,482                   |                 | (176,484)                      |                 |
| Dividends and interest from investments   | (44,150)                  |                 | (44,212)                       |                 |
| (Increase)/decrease in debtors  | (168,008)                 |                 | 9,184                          |                 |
| Increase/(decrease) in creditors  | 34,205                    |                 | (213,810)                      |                 |
| <b>Net cash used in operating activities</b>  |                           | <b>(92,149)</b> |                                | <b>(97,139)</b> |
| <b>Cash flows from investing activities:</b>  |                           |                 |                                |                 |
| Dividends and interest from investments   | 44,150                    |                 | 44,212                         |                 |
| Purchase of fixed assets  | (4,335)                   |                 | (3,184)                        |                 |
| Proceeds from sale of investments   | 436,292                   |                 | 238,320                        |                 |
| Purchase of investments   | (419,180)                 |                 | (257,451)                      |                 |
| <b>Net cash provided by investing activities</b>  |                           | <b>56,927</b>   |                                | <b>21,897</b>   |
| <b>Change in cash and cash equivalents in the year</b>  |                           | <b>(35,222)</b> |                                | <b>(75,242)</b> |
| Cash and cash equivalents at the beginning of the year  |                           | <b>335,003</b>  |                                | <b>410,245</b>  |
| <b>Cash and cash equivalents at the end of the year</b>   |                           | <b>299,781</b>  |                                | <b>335,003</b>  |
| <b>Analysis of cash and cash equivalents and of net debt</b>  |                           |                 |                                |                 |
|   | At 1 January<br>2022<br>£ | Cash flows<br>£ | At 31<br>December<br>2022<br>£ |                 |
| Cash at bank and in hand  | 305,327                   | (80,858)        | <b>224,469</b>                 |                 |
| Cash deposited with investment brokers  | 29,676                    | 45,636          | <b>75,312</b>                  |                 |
| <b>Total cash and cash equivalents</b>  | <b>335,003</b>            | <b>(35,222)</b> | <b>299,781</b>                 |                 |

**1 Accounting policies**

**a) Statutory information**

The Operational Research Society is a charitable company limited by guarantee and is incorporated in England and Wales.

The registered office address is 12 Edward Street, Birmingham, B1 2RX, UK

**b) Basis of preparation**

The financial statements have been prepared in accordance with Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) – (Charities SORP FRS 102), The Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) and the Companies Act 2006.

**c) Public benefit entity**

The charity meets the definition of a public benefit entity under FRS 102.

**d) Preparation of the accounts on a going concern basis**

The Operational Research Society operates as a going concern. The trustees consider there are no material uncertainties about the charity's ability to continue as a going concern.

The Society operates a reserves policy that reflects its critical dependence on journal income.

The policy sets the minimum level of reserves at one year's fixed running costs of £900k to keep the charity viable whilst alternative funding is found.

The maximum level is to be set at three years' running costs or £2.7 million. The charity is currently meeting its reserves target.

**e) Key estimates and judgements**

When preparing the financial statements, management makes a number of judgements, estimates and assumptions about the recognition and measurement of assets, liabilities, income and expenses. The company amortises fixed assets over their estimated useful lives. The estimation of the useful lives of assets is based on historic performance as well as expectations about future use and therefore requires estimates and assumptions to be applied by management. The actual lives of these assets can vary depending on a number of factors, including the maintenance and level of upkeep of the software systems.

**f) Income**

Income is recognised when the charity has entitlement to the funds, any performance conditions attached to the income have been met, it is probable that the income will be received and that the amount can be measured reliably. Income from government and other grants, whether 'capital' grants or 'revenue' grants, is recognised when the charity has entitlement to the funds, any performance conditions attached to the grants have been met, it is probable that the income will be received and the amount can be measured reliably and is not deferred. Income received in advance of the provision of a specified service is deferred until the criteria for income recognition are met.

**g) Dividends and investment income**

Interest and dividends on funds held on deposit or invested is included when receivable and the amount can be measured reliably by the charity; this is normally upon notification of the interest or dividend paid or payable by the relevant institution.

**h) Expenditure**

Expenditure is recognised once there is a legal or constructive obligation to make a payment to a third party, it is probable that settlement will be required and the amount of the obligation can be measured reliably. Expenditure is classified under the following activity headings:

Costs of raising funds relate to the costs incurred by the charity in inducing third parties to make voluntary contributions to it, as well as the cost of any activities with a fundraising purpose.

Expenditure on charitable activities includes the costs of delivering services, exhibitions and other educational activities undertaken to further the purposes of the charity and their associated support costs.

Other expenditure represents those items not falling into any other heading.

**i) Value added tax**

The Society has partial exemption status for Value Added Tax and Value Added Tax on apportionable costs which cannot be reclaimed is disclosed separately within administration costs.



**1 Accounting policies (continued)**

**j) Allocation of costs**

Salaries, depreciation, websites / digital services expenditure and other central and establishment overheads are allocated to appropriate cost categories using consistently applied ratios based on estimates of actual time and costs expended in each area.

Allocation of support and governance costs:

|                              |     |
|------------------------------|-----|
| Raising funds                | 0%  |
| Subscriptions                | 13% |
| Events and Conferences       | 19% |
| Training                     | 6%  |
| Apprenticeships              | 0%  |
| Publications                 | 14% |
| Accreditation                | 2%  |
| Websites / Digital Services  | 18% |
| Other Charitable expenditure | 28% |

**k) Tangible and Intangible fixed assets**

Tangible and intangible fixed assets costing more than £1,000 and with a useful economic life in excess of 3 years are capitalised and included at cost including any incidental expenses of acquisition.

Depreciation of tangible fixed assets is charged on a straight line basis at the following rates:

|  |     |
|--|-----|
| Long leasehold building                | 2%  |
| Office machines and computer equipment | 25% |
| Fixtures and fittings                  | 10% |

Amortisation of Intangible fixed assets is charged on a straight line basis at the following rate:

|                  |     |
|------------------|-----|
| Software systems | 25% |
|------------------|-----|

The amortisation rate charged is based on management's best estimate of the useful life of the software systems.

**l) Investments**

Investments are a form of basic financial instrument and are initially recognised at their transaction value and subsequently measured at their fair value as at the balance sheet date using the closing quoted market price. Any change in fair value will be recognised in the statement of financial activities. Investment gains and losses, whether realised or unrealised, are combined and shown in the heading "Net gains/(losses) on investments" in the statement of financial activities. The charity does not acquire put options, derivatives or other complex financial instruments.

**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) Cash at bank and in hand**

Cash at bank and cash in hand includes cash and short term highly liquid investments.

**o) Creditors and provisions**

Creditors and provisions are recognised where the charity has a present obligation resulting from a past event that will 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 and provisions are normally recognised at their settlement amount after allowing for any trade discounts due.

**p) Pensions**

The Society contributes to individual pension schemes established for each eligible employee.

**q) Financial instruments**

The Society 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.

**2 Income from charitable activities**

|  | Unrestricted<br>£ | Restricted<br>£ | 2022<br>Total<br>£ | Unrestricted<br>£ | Restricted<br>£ | 2021<br>Total<br>£ |
|--|-------------------|-----------------|--------------------|-------------------|-----------------|--------------------|
| Journal of The OR Society / Knowledge<br>Management Research & Practice / Journal<br>of Simulation | 759,963           | –               | <b>759,963</b>     | 729,968           | –               | 729,968            |
| Inside OR  | 2,021             | –               | <b>2,021</b>       | 1,096             | –               | 1,096              |
| European Journal of Information Systems /<br>Health Systems / Journal of Business<br>Analytics     | 295,273           | –               | <b>295,273</b>     | 206,735           | –               | 206,735            |
| Other publications   | 3,282             | –               | <b>3,282</b>       | 3,956             | –               | 3,956              |
| Sub-total for Publications   | 1,060,539         | –               | <b>1,060,539</b>   | 941,755           | –               | 941,755            |
| Subscriptions  | 147,613           | –               | <b>147,613</b>     | 147,642           | –               | 147,642            |
| Events and Conferences   | 155,501           | –               | <b>155,501</b>     | 131,120           | –               | 131,120            |
| Training   | 107,753           | –               | <b>107,753</b>     | 105,192           | –               | 105,192            |
| Accreditation  | 8,803             | –               | <b>8,803</b>       | 8,679             | –               | 8,679              |
| Websites / Digital Services  | 6,271             | –               | <b>6,271</b>       | 1,080             | –               | 1,080              |
| Total income from charitable activities  | 1,486,480         | –               | <b>1,486,480</b>   | 1,335,468         | –               | 1,335,468          |

**3 Income from investments**

|                                | Unrestricted<br>£ | Restricted<br>£ | 2022<br>Total<br>£ | Unrestricted<br>£ | Restricted<br>£ | 2021<br>Total<br>£ |
|--------------------------------|-------------------|-----------------|--------------------|-------------------|-----------------|--------------------|
| Income from Listed Investments | 41,071            | –               | <b>41,071</b>      | 42,058            | –               | 42,058             |
| Interest on Bank Deposits      | 514               | –               | <b>514</b>         | 24                | –               | 24                 |
| Distributions – CAF            | –                 | 2,565           | <b>2,565</b>       | –                 | 2,130           | 2,130              |
|                                | 41,585            | 2,565           | <b>44,150</b>      | 42,082            | 2,130           | 44,212             |

## 4a Analysis of expenditure (current year)

|                                 |                    | Charitable activities |                             |                |                       |                   |                    |                                 |                                  |                                   |                  |                 |  |
|---------------------------------|--------------------|-----------------------|-----------------------------|----------------|-----------------------|-------------------|--------------------|---------------------------------|----------------------------------|-----------------------------------|------------------|-----------------|--|
|                                 | Raising funds<br>£ | Subscriptions<br>£    | Events and Conferences<br>£ | Training<br>£  | Apprentice-ships<br>£ | Publications<br>£ | Accreditation<br>£ | Website / Digital Services<br>£ | Other Charitable Activities<br>£ | Support and governance costs<br>£ | 2022 Total<br>£  | 2021 Total<br>£ |  |
| Staff costs (Note 6)            | -                  | 94,028                | 138,280                     | 43,456         | -                     | 99,904            | 12,179             | 81,065                          | 220,728                          | 82,991                            | 772,631          | 758,939         |  |
| Recruitment costs               | -                  | 4,218                 | 6,203                       | 1,949          | -                     | 4,482             | 546                | 3,636                           | 9,902                            | 3,723                             | 34,659           |                 |  |
| Establishment Costs             | -                  | 2,518                 | 3,703                       | 1,164          | -                     | 2,676             | 326                | 2,171                           | 5,912                            | 2,223                             | 20,693           | 22,217          |  |
| Postage and phones              | -                  | 1,216                 | 2,298                       | 1,141          | -                     | 3,861             | 15                 | 149                             | 1,445                            | 533                               | 10,658           | 8,402           |  |
| Office Costs                    | -                  | 4,990                 | 7,338                       | 4,990          | -                     | 5,284             | 293                | -                               | 4,990                            | 1,468                             | 29,353           | 24,872          |  |
| Computer s/ware and maintenance | -                  | 7,656                 | 5,104                       | 2,552          | -                     | 7,145             | -                  | 17,863                          | 10,718                           | -                                 | 51,038           | 45,780          |  |
| Website                         | -                  | 5,326                 | 3,551                       | 1,775          | -                     | 4,971             | -                  | 12,427                          | 7,456                            | -                                 | 35,506           | 32,834          |  |
| Bank Charges                    | -                  | 2,210                 | 3,025                       | 1,724          | -                     | -                 | -                  | -                               | -                                | -                                 | 6,959            | 7,330           |  |
| Legal and Professional Fees     | 12,439             | -                     | -                           | -              | -                     | -                 | -                  | -                               | -                                | 21,767                            | 34,206           | 42,934          |  |
| Other Direct costs              | -                  | 4,217                 | 162,431                     | 47,739         | 3,186                 | 150,430           | -                  | -                               | 81,120                           | -                                 | 449,123          | 284,674         |  |
| Depreciation & Amortisation     | -                  | 2,428                 | 5,046                       | 577            | -                     | 2,737             | 1,146              | 48,991                          | 6,321                            | 1,716                             | 68,962           | 72,251          |  |
|                                 |                    |                       |                             |                |                       |                   |                    |                                 |                                  |                                   | -                |                 |  |
|                                 | 12,439             | 128,807               | 336,979                     | 107,067        | 3,186                 | 281,490           | 14,505             | 166,302                         | 348,592                          | 114,421                           | 1,513,788        | 1,300,233       |  |
| Support and governance costs    | -                  | 14,875                | 21,740                      | 6,865          | -                     | 16,019            | 2,288              | 20,596                          | 32,038                           | (114,421)                         | -                |                 |  |
| <b>Total expenditure 2022</b>   | <b>12,439</b>      | <b>143,682</b>        | <b>358,719</b>              | <b>113,932</b> | <b>3,186</b>          | <b>297,509</b>    | <b>16,793</b>      | <b>186,898</b>                  | <b>380,630</b>                   | <b>-</b>                          | <b>1,513,788</b> |                 |  |
| Total expenditure 2021          | 13,145             | 137,599               | 227,392                     | 105,501        | 2,000                 | 280,778           | 15,598             | 182,215                         | 336,006                          | -                                 |                  | 1,300,233       |  |

Other Charitable Activities covers the remaining non-revenue earning activities carried out in pursuit of the Society's charitable aims. It includes: library, public information about OR, third sector pro bono, research support, strategic initiatives, regional societies, special interest groups, awards and scholarships.

The Operational Research Society

Notes to the financial statements

For the year ended 31 December 2022

4b Analysis of expenditure (prior year)

|                                 | Charitable activities |                             |                |                       |                   |                    |                                 |                                  | Support and governance costs<br>£ | 2021 Total<br>£ |                  |
|---------------------------------|-----------------------|-----------------------------|----------------|-----------------------|-------------------|--------------------|---------------------------------|----------------------------------|-----------------------------------|-----------------|------------------|
| Raising funds<br>£              | Subscriptions<br>£    | Events and Conferences<br>£ | Training<br>£  | Apprentice-ships<br>£ | Publications<br>£ | Accreditation<br>£ | Website / Digital Services<br>£ | Other Charitable Activities<br>£ |                                   |                 |                  |
| Staff costs (Note 6)            | -                     | 92,363                      | 135,829        | 42,686                | -                 | 98,134             | 11,963                          | 79,628                           | 216,817                           | 81,519          | 758,939          |
| Establishment Costs             | -                     | 2,704                       | 3,976          | 1,250                 | -                 | 2,873              | 350                             | 2,331                            | 6,347                             | 2,386           | 22,217           |
| Postage and phones              | -                     | 959                         | 1,811          | 900                   | -                 | 3,043              | 12                              | 118                              | 1,139                             | 420             | 8,402            |
| Office Costs                    | -                     | 4,228                       | 6,218          | 4,228                 | -                 | 4,476              | 249                             | -                                | 4,228                             | 1,245           | 24,872           |
| Computer s/ware and maintenance | -                     | 6,867                       | 4,578          | 2,289                 | -                 | 6,409              | -                               | 16,023                           | 9,614                             | -               | 45,780           |
| Website                         | -                     | 4,925                       | 3,283          | 1,642                 | -                 | 4,597              | -                               | 11,492                           | 6,895                             | -               | 32,834           |
| Bank Charges                    | -                     | 2,328                       | 3,186          | 1,816                 | -                 | -                  | -                               | -                                | -                                 | -               | 7,330            |
| Legal and Professional Fees     | 13,145                | -                           | -              | -                     | -                 | -                  | -                               | -                                | -                                 | 29,789          | 42,934           |
| Other Direct costs              | -                     | 5,208                       | 41,497         | 42,752                | 2,000             | 142,180            | -                               | -                                | 51,037                            | -               | 284,674          |
| Depreciation & Amortisation     | -                     | 2,544                       | 5,287          | 604                   | -                 | 2,867              | 1,201                           | 51,327                           | 6,623                             | 1,798           | 72,251           |
|                                 | 13,145                | 122,126                     | 205,665        | 98,167                | 2,000             | 264,579            | 13,775                          | 160,919                          | 302,700                           | 117,157         | 1,300,233        |
| Support and governance costs    | -                     | 15,473                      | 21,727         | 7,334                 | -                 | 16,199             | 1,823                           | 21,296                           | 33,306                            | (117,157)       | -                |
| <b>Total expenditure 2021</b>   | <b>13,145</b>         | <b>137,599</b>              | <b>227,392</b> | <b>105,501</b>        | <b>2,000</b>      | <b>280,778</b>     | <b>15,598</b>                   | <b>182,215</b>                   | <b>336,006</b>                    | <b>-</b>        | <b>1,300,233</b> |
| Total expenditure 2020          | 11,672                | 132,952                     | 181,894        | 92,004                | -                 | 271,107            | 8,898                           | 179,606                          | 329,281                           | -               |                  |

Other Charitable Activities covers the remaining non-revenue earning activities carried out in pursuit of the Society's charitable aims. It includes: library, public information about OR, third sector pro bono, research support, strategic initiatives, regional societies, special interest groups, awards and scholarships.

**5 Net income / (expenditure) for the year**

This is stated after charging / (crediting):

|  | 2022<br>£ | 2021<br>£ |
|--|-----------|-----------|
| Depreciation and amortisation                    | 68,962    | 72,252    |
| Auditor's remuneration (excluding VAT):<br>Audit | 9,750     | 8,850     |

**6 Analysis of staff costs, trustee remuneration and expenses, and the cost of key management personnel**

Staff costs were as follows:

|                       | 2022<br>£ | 2021<br>£ |
|-----------------------|-----------|-----------|
| Salaries and wages    | 642,043   | 634,379   |
| Social security costs | 64,489    | 58,847    |
| Pension costs         | 66,099    | 65,713    |
|                       | 772,631   | 758,939   |

The following number of employees received employee benefits (excluding employer pension costs and employer's national insurance) during the year between:

|                   | 2022<br>No. | 2021<br>No. |
|-------------------|-------------|-------------|
| £60,000 – £69,999 | 1           | –           |
| £80,000 – £89,999 | –           | 1           |
| £90,000 – £99,999 | 1           | –           |

The key management personnel of the Society comprise the Executive Director. The total employee benefits (including pension contributions and employer's national insurance) of the key management personnel were £111,308 (2021: £109,557).

No remuneration was paid or is payable to Trustees for service on the Board for the year (2021: £nil).

Trustees' expenses represents the payment or reimbursement of travel and subsistence costs totalling £544 (2021: £nil) incurred by 8 (2021: nil) members relating to attendance at meetings of the trustees.

**7 Staff numbers**

The average number of employees (head count based on number of staff employed) during the year was 17.7 (2021: 18.3).

Staff are split across the activities of the charity as follows:

|                               | 2022      |      | 2021      |      |
|-------------------------------|-----------|------|-----------|------|
|                               | Headcount | FTE  | Headcount | FTE  |
| Charitable activities         | 14.7      | 13.6 | 14.3      | 13.7 |
| Management and administration | 3.0       | 3.0  | 4.0       | 3.1  |
|                               | 17.7      | 16.6 | 18.3      | 16.8 |

## 8 Related party transactions

Gavin Blackett, as part of his Society role as Executive Director, is also a Director of Edward Street Management Limited, the company that manages the Society's buildings car park. During the year the Society paid rent to the company of £3,030 (2021: £3,030).

Amanda Blackett, the wife of Gavin Blackett, the Society's Executive Director, is employed by the Society. Amanda receives an appropriate salary for the role undertaken, in line with market rates.

## 9 Taxation

The charity is exempt from corporation tax as all its income is charitable and is applied for charitable purposes.

## 10 Tangible fixed assets

| Cost                     | Long<br>leasehold<br>land and<br>buildings<br>£ | Office<br>equipment<br>£ | Fixtures and<br>fittings<br>£ | Total<br>£ |
|--------------------------|---|--------------------------|-------------------------------|------------|
| At the start of the year | 314,306   | 56,658                   | 127,168                       | 498,132    |
| Additions in year        | –   | 1,085                    | 3,250                         | 4,335      |
| At the end of the year   | 314,306   | 57,743                   | 130,418                       | 502,467    |
| <b>Depreciation</b>      |   |                          |                               |            |
| At the start of the year | 176,008   | 48,511                   | 35,248                        | 259,767    |
| Charge for the year      | 6,286   | 6,537                    | 13,042                        | 25,865     |
| At the end of the year   | 182,294   | 55,048                   | 48,290                        | 285,632    |
| <b>Net book value</b>    |   |                          |                               |            |
| At the end of the year   | 132,012   | 2,695                    | 82,128                        | 216,835    |
| At the start of the year | 138,298   | 8,147                    | 91,920                        | 238,365    |

The Trustees consider the market value of the Long Leasehold Land and Buildings to be materially in excess of the book written down value shown above.

**11 Intangible fixed assets**

|                          | Software<br>systems<br>£ | Total<br>£ |
|--------------------------|--------------------------|------------|
| <b>Cost</b>              |                          |            |
| At the start of the year | 206,672                  | 206,672    |
| At the end of the year   | 206,672                  | 206,672    |
| <b>Amortisation</b>      |                          |            |
| At the start of the year | 163,575                  | 163,575    |
| Charge for the year      | 43,097                   | 43,097     |
| At the end of the year   | 206,672                  | 206,672    |
| <b>Net book value</b>    |                          |            |
| At the end of the year   | -                        | -          |
| At the start of the year | 43,097                   | 43,097     |

**12 Listed investments**

|   | 2022<br>£ | 2021<br>£ |
|---|-----------|-----------|
| Fair value at the start of the year                 | 1,994,818 | 1,799,203 |
| Additions at cost                                   | 419,180   | 257,451   |
| Disposal proceeds                                   | (436,292) | (238,320) |
| Net (loss)/gain on change in fair value             | (290,482) | 176,484   |
|   | 1,687,224 | 1,994,818 |
| Cash held by investment broker pending reinvestment | 75,312    | 29,676    |
| Fair value at the end of the year                   | 1,762,536 | 2,024,494 |
| Investments comprise:                               |           |           |
|   | 2022<br>£ | 2021<br>£ |
| UK Common investment funds                          | 158,566   | 226,151   |
| Shares listed on the London Stock Exchange          | 504,289   | 727,745   |
| UK Property and assets                              | 306,021   | 336,838   |
| Overseas Investment funds                           | 181,510   | 48,786    |
| Overseas Shares                                     | 536,838   | 655,298   |
|   | 1,687,224 | 1,994,818 |

**13 Debtors**

|                 | 2022<br>£      | 2021<br>£      |
|-----------------|----------------|----------------|
| Trade debtors   | 63,838         | 31,456         |
| Prepayments     | 68,470         | 67,502         |
| Accrued income  | 223,522        | 111,102        |
| Recoverable VAT | 24,473         | 2,235          |
|                 | <b>380,303</b> | <b>212,295</b> |

**14 Creditors: amounts falling due within one year**

|                              | 2022<br>£      | 2021<br>£      |
|------------------------------|----------------|----------------|
| Trade creditors              | 35,041         | 29,532         |
| Taxation and social security | 28,783         | 22,534         |
| Other creditors              | 4,238          | 14,092         |
| Accruals                     | 94,549         | 75,056         |
| Deferred income (note 15)    | 43,859         | 31,051         |
|                              | <b>206,470</b> | <b>172,265</b> |

**15 Deferred income**

|                                       | 2022<br>£     | 2021<br>£     |
|---------------------------------------|---------------|---------------|
| Balance at the beginning of the year  | 31,051        | 67,298        |
| Amount released to income in the year | (31,051)      | (67,298)      |
| Amount deferred in the year           | 43,859        | 31,051        |
|                                       | <b>43,859</b> | <b>31,051</b> |

Deferred income consists of 2023 subscription income paid in advance.



**For the year ended 31 December 2022**

**16a Analysis of net assets between funds (current year)**

|                                       | Unrestricted<br>£ | Restricted<br>£ | Total funds<br>£ |
|---------------------------------------|-------------------|-----------------|------------------|
| Tangible fixed assets                 | 216,835           | –               | 216,835          |
| Intangible fixed assets               | –                 | –               | –                |
| Investments                           | 1,696,976         | 65,560          | 1,762,536        |
| Net current assets                    | 398,302           | –               | 398,302          |
| <b>Net assets at 31 December 2022</b> | <b>2,312,113</b>  | <b>65,560</b>   | <b>2,377,673</b> |

**16b Analysis of net assets between funds (prior year)**

|                                       | Unrestricted<br>£ | Restricted<br>£ | Total funds<br>£ |
|---------------------------------------|-------------------|-----------------|------------------|
| Tangible fixed assets                 | 238,365           | –               | 238,365          |
| Intangible fixed assets               | 43,097            | –               | 43,097           |
| Investments                           | 1,951,146         | 73,348          | 2,024,494        |
| Net current assets                    | 345,357           | –               | 345,357          |
| <b>Net assets at 31 December 2021</b> | <b>2,577,965</b>  | <b>73,348</b>   | <b>2,651,313</b> |

17a Movements in funds (current year)

|                           | At 1 January<br>2022<br>£ | Income &<br>gains<br>£ | Expenditure<br>& losses<br>£ | Transfers<br>£ | At 31<br>December<br>2022<br>£ |
|---------------------------|---------------------------|------------------------|------------------------------|----------------|--------------------------------|
| <b>Restricted Funds</b>   | 73,348                    | 2,565                  | (13,457)                     | –              | <b>62,456</b>                  |
| <b>Unrestricted Funds</b> | 2,577,965                 | 1,251,040              | (1,513,788)                  | –              | <b>2,315,217</b>               |
| <b>Total funds</b>        | <b>2,651,313</b>          | <b>1,253,605</b>       | <b>(1,527,245)</b>           | <b>–</b>       | <b>2,377,673</b>               |

The narrative to explain the purpose of the restricted fund is given at the foot of the note below.

17b Movements in funds (prior year)

|                           | At 1 January<br>2021<br>£ | Income &<br>gains<br>£ | Expenditure<br>& losses<br>£ | Transfers<br>£ | At 31<br>December<br>2021<br>£ |
|---------------------------|---------------------------|------------------------|------------------------------|----------------|--------------------------------|
| <b>Restricted Funds</b>   | 61,722                    | 2,130                  | (5,104)                      | 14,600         | <b>73,348</b>                  |
| <b>Unrestricted Funds</b> | 2,333,660                 | 1,557,638              | (1,298,733)                  | (14,600)       | <b>2,577,965</b>               |
| <b>Total funds</b>        | <b>2,395,382</b>          | <b>1,559,768</b>       | <b>(1,303,837)</b>           | <b>–</b>       | <b>2,651,313</b>               |

**Restricted Funds**

Consists of a legacy received in 2002. The Legator, Mrs May Hicks, expressed a non-binding wish that the Society uses its bequest to fund an annual award to be determined by the Council of the Society. The legacy is currently invested in the Charities Aid Foundation Fixed Interest B Accumulation Fund. It also includes an amount received from the ISMOR trust of £14,600 to be used to fund ISMOR scholarships.

# 18 Operating lease commitments payable as a lessee

The charity's total future minimum lease payments under non-cancellable operating leases is as follows for each of the following periods

|                    | Leasehold Property Service Charge |                | Equipment     |               |
|--------------------|-----------------------------------|----------------|---------------|---------------|
|                    | 2022<br>£                         | 2021<br>£      | 2022<br>£     | 2021<br>£     |
| Less than one year | 3,030                             | 3,030          | 5,435         | 5,548         |
| One to five years  | 12,120                            | 12,120         | 11,224        | 8,390         |
| Over five years    | 245,430                           | 248,460        | –             | –             |
|                    | <b>260,580</b>                    | <b>263,610</b> | <b>16,659</b> | <b>13,938</b> |

# 19 Post balance sheet events

# 20 Legal status of the charity

The Society is a company limited by guarantee, has no share capital and is a registered charity. The objectives of the Society are the advancement of knowledge and education in operational research.

The liability of each member in the event of a winding-up is limited to £1.

# History

In the autumn of 1947, at a dinner discussion convened at the Athenaeum Club in London, it was decided to form the Operational Research Club. The club was inaugurated in April 1948 with an initial membership of 50, under the chairmanship of Sir Charles Goodeve and with Mr J A Jukes as the first secretary. The exclusivity associated with the word “club” was deliberately chosen for the initial period, to ensure clarification of what was meant by operational research and to attempt to develop a wholeness in what was otherwise a somewhat vague field. The club met regularly in the rooms at the Royal Society for technical discussions. By 1953 the initial objectives had been achieved and the pressure to form a normal “learned and professional” society had become strong. Therefore, the club was transformed into The Operational Research Society and its first president was Sir Owen Wansbrough-Jones and the hon secretary Mr B H P Rivett.

## Presidents of the Society

|                           |         |            |         |
|---------------------------|---------|------------|---------|
| Sir Owen Wansbrough-Jones | 1954/55 | Dr G Owusu | 2023/24 |
| Sir William K Slater      | 1956/57 |            |         |
| Professor M G Kendall     | 1958/59 |            |         |
| The Earl of Halsbury      | 1960/61 |            |         |
| Professor B H P Rivett    | 1962/63 |            |         |
| Professor G A Barnard     | 1964/65 |            |         |
| Professor R T Eddison     | 1966/67 |            |         |
| Mr E C Williams           | 1968/69 |            |         |
| Mr S Beer                 | 1970/71 |            |         |
| Professor K D Tocher      | 1972/73 |            |         |
| Mr R C Tomlinson          | 1974/75 |            |         |
| Mr A M Lee                | 1976/77 |            |         |
| Professor M G Simpson     | 1978/79 |            |         |
| Mr G H Mitchell           | 1980/81 |            |         |
| Professor K B Haley       | 1982/83 |            |         |
| Dr R S Stainton           | 1984/85 |            |         |
| Professor J V Rosenhead   | 1986/87 |            |         |
| Dr J C Ranyard            | 1988/89 |            |         |
| Mr P N Thornton           | 1990/91 |            |         |
| Professor C B Chapman     | 1992/93 |            |         |
| Professor L C Thomas      | 1994/95 |            |         |
| Mr I J Disley             | 1996/97 |            |         |
| Professor R G Dyson       | 1998/99 |            |         |
| Professor M Pidd          | 2000/01 |            |         |
| Mr J Gibb                 | 2002/03 |            |         |
| Professor V Belton        | 2004/05 |            |         |
| Professor J D Griffiths   | 2006/07 |            |         |
| Mrs S M Merchant          | 2008/09 |            |         |
| Professor R W Eglese      | 2010/11 |            |         |
| Dr G H Royston            | 2012/13 |            |         |
| Professor S L Robinson    | 2014/15 |            |         |
| Ms R A Kaufman OBE        | 2016/17 |            |         |
| Mr J R Hopes              | 2018/19 |            |         |
| Professor E K Burke       | 2020/22 |            |         |

# OR Society Awards

## Companion of Operational Research

|                            |      |                          |      |
|----------------------------|------|--------------------------|------|
| Sir Hermann Bondi          | 1983 | Professor R G Dyson      | 2007 |
| Mr D Hicks                 | 1983 | Mr E K G James           | 2007 |
| Professor R V Jones        | 1983 | Professor J Friend       | 2008 |
| Professor B H P Rivett     | 1983 | Dr G Royston             | 2008 |
| Mr H R W Watkins           | 1984 | Professor R J Paul       | 2009 |
| Professor Sir David Cox    | 1985 | Professor A Mercer       | 2010 |
| Lord Ezra                  | 1985 | Mr T O'Connor            | 2010 |
| Mr P Hughes                | 1985 | Professor V Belton       | 2011 |
| Lord Zuckerman             | 1985 | Ms R A Kaufman           | 2011 |
| Sir John Kingman           | 1986 | Professor M Pidd         | 2011 |
| Sir Dennis Rooke           | 1986 | Professor P H Millard    | 2012 |
| Sir Charles Carter         | 1987 | Professor D M Ryan       | 2013 |
| Mr T P Frost               | 1987 | Professor R M Davies     | 2014 |
| Professor H.Muller-Merbach | 1988 | Mr C R Humby             | 2014 |
| Mr D A Quarmby             | 1989 | Mrs S M Merchant         | 2015 |
| Professor R C Tomlinson    | 1990 | Professor S C Brailsford | 2016 |
| Mr R A Showell             | 1991 | Professor J D Griffiths  | 2016 |
| Mr G H Mitchell            | 1992 | Professor E K Burke      | 2017 |
| Professor P Whittle        | 1994 | Professor P R Harper     | 2018 |
| Mr J Plymen                | 1994 | Professor R W Eglese     | 2019 |
| Professor S Vajda          | 1995 | Mr A Waterhouse          | 2020 |
| Professor K B Haley        | 1996 | Professor A C Pagel      | 2021 |
| Professor M F Shutler      | 1996 | Dr J E Williams          | 2022 |
| Professor D J White        | 2001 |                          |      |
| Professor K C Bowen        | 2001 |                          |      |
| Dr R A Forder              | 2005 |                          |      |
| Professor F Kelly          | 2005 |                          |      |
| Mr G K Rand                | 2005 |                          |      |
| Dr J C Ranyard             | 2005 |                          |      |
| Professor J V Rosenhead    | 2005 |                          |      |
| Dr J F Miles               | 2006 |                          |      |

## Beale Medal

|               |      |                |      |          |      |
|---------------|------|----------------|------|----------|------|
| J V Rosenhead | 1992 | J D Griffiths  | 2009 | R Cheng  | 2018 |
| D J White     | 1993 | K H Haley      | 2010 | A Land   | 2019 |
| A H Christer  | 1995 | F Kelly        | 2011 | V Belton | 2020 |
| G H Mitchell  | 1998 | M D Elder      | 2012 | C Potts  | 2021 |
| H P Williams  | 1999 | K D Glazebrook | 2013 |          |      |
| R C Tomlinson | 2005 | R Fildes       | 2014 |          |      |
| P Checkland   | 2006 | J Friend       | 2015 |          |      |
| C Eden        | 2007 | R Ormerod      | 2016 |          |      |
| L C Thomas    | 2008 | M Jackson      | 2017 |          |      |

## Silver Medal

|              |      |             |      |                 |      |
|--------------|------|-------------|------|-----------------|------|
| C F Goodeve  | 1964 | A M Lee     | 1970 | S Eilon         | 1982 |
| P M Morse    | 1965 | R L Ackoff  | 1971 | G Dantzig       | 1986 |
| K D Tocher   | 1967 | C G Vickers | 1975 | L V Kantorovich | 1986 |
| B H P Rivett | 1968 | E.K.G.James | 1979 |                 |      |
| R T Eddison  | 1969 | E M L Beale | 1980 |                 |      |

## Bronze Medal

|             |      |              |      |            |      |
|-------------|------|--------------|------|------------|------|
| R M Adelson | 1965 | A R Wild     | 1967 | F K Lyness | 1970 |
| J Stringer  | 1967 | D J Chambers | 1968 | A M Duguid | 1972 |
| T A Burgin  | 1967 | M F Cantley  | 1969 | C G Moss   | 1972 |

# Goodeve Medal

|                 |      |                |      |                |      |
|-----------------|------|----------------|------|----------------|------|
| B H Mahon       | 1976 | P Klopprogge   | 2001 | S Crowe        | 2015 |
| R J M Bailey    | 1976 | R Dekker       | 2001 | P Bennett      | 2015 |
| N R Tobin       | 1977 | S Howick       | 2002 | M Daraktchiev  | 2015 |
| I Sanderson     | 1979 | C Eden         | 2002 | M Utley        | 2015 |
| A J Williams    | 1980 | J E Beasley    | 2003 | S C Brailsford | 2016 |
| J G Shepherd    | 1981 | H Howells      | 2003 | D De Silva     | 2016 |
| F K Lyness      | 1982 | J Sonander     | 2003 | A Backiel      | 2017 |
| L P Fatti       | 1984 | R Hartley      | 2004 | B Baesens      | 2017 |
| A H Christer    | 1985 | G Lanot        | 2004 | G Claeskens    | 2017 |
| W M Waller      | 1985 | S C Brailsford | 2005 | A I Ali        | 2018 |
| G Best          | 1987 | V Lattimer     | 2005 | G Ince         | 2018 |
| G Parston       | 1987 | P Tarnaras     | 2005 | A Brice        | 2019 |
| J V Rosenhead   | 1987 | J Turnbull     | 2005 | R Bye          | 2019 |
| D Rowland       | 1988 | K Taylor       | 2006 | J Oppen        | 2019 |
| I R Turner      | 1989 | B Dangerfield  | 2006 | J Royset       | 2019 |
| R Bandyopadhyay | 1990 | S C Brailsford | 2007 | E Adiyeye      | 2020 |
| S Datta         | 1990 | D Evenden      | 2007 | S Agrali       | 2020 |
| D Schradly      | 1992 | V Harinda      | 2007 | E Canakoglu    | 2020 |
| D Wadsworth     | 1992 | P Harper       | 2007 | G Gehret       | 2021 |
| A Bouzaher      | 1993 | A Medina-Borja | 2008 | J Weir         | 2021 |
| S Offutt        | 1993 | K S Pasupathy  | 2008 | A Johnson      | 2021 |
| D W Bunn        | 1994 | K Triantis     | 2008 | D Jacques      | 2021 |
| E R Larsen      | 1994 | D Ronen        | 2009 | G Bruno        | 2022 |
| K Vlahos        | 1994 | C A Goodhart   | 2009 | M Cavola       | 2022 |
| G M Campbell    | 1995 | S Kumar        | 2010 | A Diglio       | 2022 |
| C F Davis       | 1995 | D A Nottestad  | 2010 | G Laporte      | 2022 |
| M Carey         | 1996 | E E Murphy     | 2010 | C Piccolo      | 2022 |
| D Lockwood      | 1996 | L C Thomas     | 2011 |                |      |
| C M Yeats       | 1997 | F R Johnston   | 2012 |                |      |
| T Rehman        | 1997 | E A Shale      | 2012 |                |      |
| D-W Tcha        | 1998 | S Kapoor       | 2012 |                |      |
| T-J Choi        | 1998 | A Sheth        | 2012 |                |      |
| Y-S Myung       | 1998 | R True         | 2012 |                |      |
| F Duckworth     | 1999 | P Kemmer       | 2013 |                |      |
| A J Lewis       | 1999 | A Strauss      | 2013 |                |      |
| J Banasik       | 2000 | T Winter       | 2013 |                |      |
| J N Crook       | 2000 | J Bengtsson    | 2014 |                |      |
| L C Thomas      | 2000 | D Bredstrom    | 2014 |                |      |
| R Korporaal     | 2001 | P Flisberg     | 2014 |                |      |
| A Ridder        | 2001 | M Ronnqvist    | 2014 |                |      |

## Stafford Beer Medal

|              |      |              |      |                 |      |
|--------------|------|--------------|------|-----------------|------|
| JJ Jahng     | 2003 | R Lederman   | 2012 | N Hikmet        | 2019 |
| H Jain       | 2003 | R Johnston   | 2012 | A Connolly      | 2019 |
| K Ramamurthy | 2003 | H Koch       | 2013 | C Davis         | 2019 |
| R Lindgren   | 2004 | E Gonzalez   | 2013 | A Bhattacharjee | 2019 |
| D Stenmark   | 2004 | D Leidner    | 2013 | F Brachten      | 2020 |
| J Ljungberg  | 2004 | D Denyer     | 2014 | B Cabrera       | 2020 |
| S Sarker     | 2005 | M Hall       | 2014 | G Neubaum       | 2020 |
| S Sahay      | 2005 | E Kutsch     | 2014 | L Pilz          | 2020 |
| S Madon      | 2006 | E Lee-Kelley | 2014 | B Ross          | 2020 |
| C Middleton  | 2007 | P Tallon     | 2015 | S Stieglitz     | 2020 |
| W Cukier     | 2007 | J Gerow      | 2016 | A Baiyere       | 2021 |
| S K Sia      | 2008 | J Thatcher   | 2016 | H Salmela       | 2021 |
| C Soh        | 2008 | V Grover     | 2016 | T Tapanainen    | 2021 |
| C Ashurst    | 2009 | A Utesheva   | 2017 | A Hanelt        | 2022 |
| N Doherty    | 2009 | J Simpson    | 2017 | S Firk          | 2022 |
| J Peppard    | 2009 | D Cecez-     | 2017 | B Hilebrant     | 2022 |
| F Thiesse    | 2010 | Kecmanovic   |      | L Kolbe         | 2022 |
| J Al-Kassab  | 2010 | R Parks      | 2018 |                 |      |
| E Fleisch    | 2010 | H Xu         | 2018 |                 |      |
| P O'Reilly   | 2011 | C-H Chu      | 2018 |                 |      |
| P Flanagan   | 2011 | P Lowry      | 2018 |                 |      |

## Tochter Medal

|              |      |                |      |              |      |
|--------------|------|----------------|------|--------------|------|
| K Kotiadis   | 2009 | J Xu           | 2017 | E Nino-Perez | 2019 |
| T Pitana     | 2011 | E Huang        | 2017 | Y M Mendez-  | 2019 |
| E Kobayashii | 2011 | L Hsieh        | 2017 | Vazquez      |      |
| C Boer       | 2013 | L H Lee        | 2017 | E Applegate  | 2021 |
| Y Saanen     | 2013 | Q Jia          | 2017 | G Feldman    | 2021 |
| K-H Chang    | 2015 | C Chen         | 2017 | S Hunter     | 2021 |
| A-L Chang    | 2015 | M Cabrera-Rios | 2019 | R Pasupathy  | 2021 |
| C-Y Kuo      | 2015 | D E Arias      | 2019 |              |      |
|              |      | Gonzalez       |      |              |      |

## Cook Medal

|            |      |               |      |                |      |
|------------|------|---------------|------|----------------|------|
| P Jackson  | 2014 | M Walsh       | 2016 | D Apostolou    | 2020 |
| J Klobas   | 2014 | R Murray      | 2016 | E Kalogeraki   | 2020 |
| D Pentland | 2016 | L Irvine      | 2016 | S Papastergiou | 2020 |
| K Forsyth  | 2016 | F Di Vincenzo | 2018 | N Polemi       | 2020 |
| D MacIver  | 2016 | D Mascia      | 2018 | C Guthrie      | 2022 |



## Griffiths Medal

|                 |      |              |      |               |      |
|-----------------|------|--------------|------|---------------|------|
| H Witteman      | 2015 | V Mabin      | 2019 | J Wilkerson   | 2021 |
| J Stahl         | 2015 | J Yee        | 2019 | L Millburg    | 2021 |
| M Mihaylow      | 2017 | S Babington  | 2019 | T Robberts    | 2021 |
| P Smet          | 2017 | R Moore      | 2019 | D Morgareidge | 2021 |
| W Van Den       | 2017 | V Caldwell   | 2019 |               |      |
| Noortgate       |      | T Young      | 2021 |               |      |
| G Vanden Berghe | 2017 | S Soorapanth | 2021 |               |      |

## Ranyard Medal

|           |      |         |      |
|-----------|------|---------|------|
| A Jeyaraj | 2020 | B Shah  | 2022 |
| A Zadeh   | 2020 | V Dixit | 2022 |
| S John    | 2022 | A Wani  | 2022 |

## Lyn Thomas Impact Medal

|            |      |            |      |               |      |
|------------|------|------------|------|---------------|------|
| S Crowe    | 2019 | D Behrens  | 2021 | A Harper      | 2022 |
| C Pagel    | 2019 | V Knight   | 2021 | T Kaplan      | 2022 |
| M Utley    | 2019 | G Palmer   | 2021 | S Chakravarty | 2022 |
| P Harper   | 2021 | M Tuson    | 2021 | S Martin      | 2022 |
| I Spernaes | 2021 | S Bale     | 2021 | A Fordyce     | 2022 |
| D Gartner  | 2021 | N Mustafee | 2022 |               |      |
| T England  | 2021 | J Powell   | 2022 |               |      |

## Doctoral Award

|              |      |             |      |            |        |
|--------------|------|-------------|------|------------|--------|
| K Kaparis    | 2008 | T Lidbetter | 2013 | G Palmer   | 2018   |
| A Strauss    | 2009 | M Takac     | 2014 | M Bedenek  | 2019 † |
| F Liberatore | 2010 | C Koc       | 2015 | L Morgan   | 2019 † |
| R Wood       | 2011 | I Megiddo   | 2016 | J Clarkson | 2020   |
| K Rustogi    | 2012 | J F Sze     | 2017 | G Alozie   | 2021   |

† Joint winners

## President's Medal

|                 |      |                |      |              |      |
|-----------------|------|----------------|------|--------------|------|
| D R Corkindale  | 1976 | P Loader       | 2004 | M Wauben     | 2019 |
| M L Chambers    | 1977 | M Bryant       | 2004 | P Macdent    | 2019 |
| R G Dyson       | 1977 | P Bates        | 2004 | B Marshall   | 2019 |
| M Sloman        | 1978 | C McGuckin     | 2004 | E Baggot     | 2020 |
| J V Rosenhead   | 1979 | D Kelly        | 2004 | K Brett      | 2020 |
| P Doyle         | 1980 | P Loucopoulos  | 2005 | J Low        | 2020 |
| J Fenwick       | 1980 | KG Zagrafos    | 2005 | H Mann       | 2020 |
| G P Savage      | 1980 | Y Pyrgiotis    | 2005 | M McKee      | 2020 |
| D B Gilding     | 1981 | D Beis         | 2005 | S Rose       | 2020 |
| C Lock          | 1981 | A Swain        | 2006 | S Smith      | 2020 |
| B Fokkens       | 1982 | A Ross         | 2006 | A Tako       | 2021 |
| M Puylaert      | 1982 | A Lewins       | 2007 | S Robinson   | 2021 |
| R S Hambleton   | 1983 | M Sykes        | 2007 | A Gogi       | 2021 |
| A W Nimmo       | 1984 | A Moon         | 2007 | Z Radnor     | 2021 |
| C B Chapman     | 1985 | M Allwright    | 2008 | E Arafailova | 2022 |
| D F Cooper      | 1985 | J Ball         | 2008 | F Bucci      | 2022 |
| A B Cammaert    | 1985 | D Pankhurst    | 2008 | T Butler     | 2022 |
| P Doyle         | 1987 | I Wright       | 2008 | G Dikas      | 2022 |
| J Saunders      | 1987 | P Frangos      | 2010 | S Doguparthi | 2022 |
| M Pidd          | 1988 | S Hughes       | 2010 | R Fuentes    | 2022 |
| S R Clarke      | 1989 | S Hammond      | 2011 | R Hart       | 2022 |
| A H Christer    | 1990 | K Slater       | 2011 | A Kishan     | 2022 |
| K A H Kobbacy   | 1990 | C Marston      | 2012 | C Kocer      | 2022 |
| B C Dangerfield | 1991 | P Rose         | 2012 | A Kolev      | 2022 |
| C A Roberts     | 1991 | S Mardle       | 2013 | S Lautz      | 2022 |
| M B Wright      | 1992 | L Fildes       | 2013 | S Logan      | 2022 |
| C P Thunhurst   | 1993 | A Lewins       | 2013 | F Milano     | 2022 |
| C J Ritchie     | 1993 | E Husemann     | 2014 | E Reynolds   | 2022 |
| A Khakee        | 1994 | D Lane         | 2014 | H Singh      | 2022 |
| K Stromberg     | 1994 | E Munro        | 2014 | S Spurri     | 2022 |
| J J Glen        | 1996 | G Owusu        | 2016 | H Teagle     | 2022 |
| H Tsoukas       | 1997 | S Shakya       | 2016 | B White      | 2022 |
| D B Papoulas    | 1997 | R Dorne        | 2016 | D Wong       | 2022 |
| J H Powell      | 1998 | A Mohamed      | 2016 |              |      |
| G Laporte       | 1999 | A McCormick    | 2016 |              |      |
| F Semet         | 1999 | A Liret        | 2016 |              |      |
| V V Dadeshidze  | 1999 | O Buhlinger    | 2017 |              |      |
| L J Olsson      | 1999 | C Henzel       | 2017 |              |      |
| F Vasko         | 2000 | M Clocherty    | 2017 |              |      |
| H Gilles        | 2000 | M Knapton      | 2017 |              |      |
| D Bright        | 2000 | H Papachristou | 2017 |              |      |
| V Kocatulum     | 2000 | C Legge        | 2017 |              |      |
| E Wolf          | 2000 | R Leese        | 2018 |              |      |
| J Moffat        | 2000 | J Blaavand     | 2018 |              |      |
| J J Race        | 2001 | C Centazzo     | 2018 |              |      |
| D Burnell       | 2001 | A Bejan        | 2018 |              |      |
| M Neighbour     | 2002 | P Munday       | 2018 |              |      |
| M Acutt         | 2003 | A Booker       | 2019 |              |      |



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