



THE
OPERATIONAL
RESEARCH
SOCIETY

Annual Report and Accounts

for the year ended 31 December 2022

The Operational Research Society
12 Edward Street, Birmingham, B1 2RX, UK
Tel +44(0)121 233 9300. Fax +44(0)121 233 0321
email@theorsociety.com www.theorsociety.com

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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 75th 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 assurance 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). 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 75th 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.

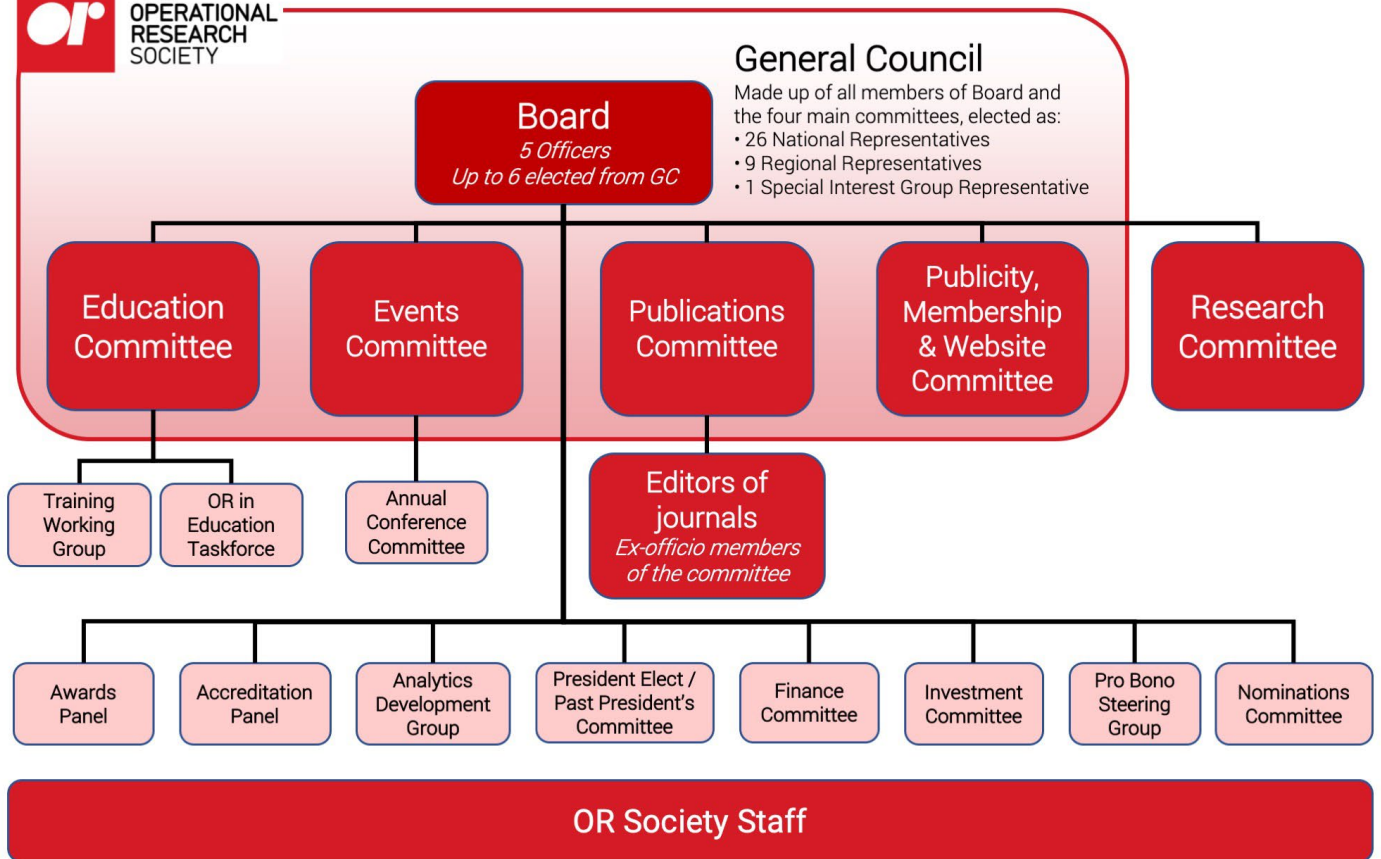
The following served as members of the Board in 2022

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

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 £	£	2021 £
Fixed assets:					
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>
Current assets:					
Debtors	13	380,303		212,295	
Cash at bank and in hand		224,469		305,327	
		<u>604,772</u>		<u>517,622</u>	
Liabilities:					
Creditors: amounts falling due within one year	14	(206,470)		(172,265)	
			<u>398,302</u>		<u>345,357</u>
Net current assets					
			<u>2,377,673</u>		<u>2,651,313</u>
Total net assets					
			<u>2,377,673</u>		<u>2,651,313</u>
The funds of the charity:	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>
Total charity funds			<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

The Operational Research Society

Statement of cash flows

For the year ended 31 December 2022

	2022 £	£	2021 £	£
Cash flows from operating activities				
Net (expenditure)/income for the reporting period (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)	
Net cash used in operating activities		(92,149)		(97,139)
Cash flows from investing activities:				
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)	
Net cash provided by investing activities		56,927		21,897
Change in cash and cash equivalents in the year		(35,222)		(75,242)
Cash and cash equivalents at the beginning of the year		335,003		410,245
Cash and cash equivalents at the end of the year		299,781		335,003
Analysis of cash and cash equivalents and of net debt				
	At 1 January 2022 £	Cash flows £	At 31 December 2022 £	
Cash at bank and in hand	305,327	(80,858)	224,469	
Cash deposited with investment brokers	29,676	45,636	75,312	
Total cash and cash equivalents	335,003	(35,222)	299,781	

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%
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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.

The Operational Research Society

Notes to the financial statements

For the year ended 31 December 2022

2 Income from charitable activities

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

3 Income from investments

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

4a Analysis of expenditure (current year)

	Charitable activities										2022 Total £	2021 Total £
	Raising funds £	Subscriptions £	Events and Conferences £	Training £	Apprentice- ships £	Publications £	Accreditation £	Website / Digital Services £	Other Charitable Activities £	Support and governance costs £		
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)	-	
Total expenditure 2022	12,439	143,682	358,719	113,932	3,186	297,509	16,793	186,898	380,630	-	1,513,788	
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										2021 Total £
	Raising funds £	Subscriptions £	Events and Conferences £	Training £	Apprentice- ships £	Publications £	Accreditation £	Website / Digital Services £	Other Charitable Activities £	Support and governance costs £	
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)	-
Total expenditure 2021	13,145	137,599	227,392	105,501	2,000	280,778	15,598	182,215	336,006	-	1,300,233
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 £	2021 £
Depreciation and amortisation	68,962	72,252
Auditor's remuneration (excluding VAT): Audit	9,750	8,850
	<u>68,962</u>	<u>72,252</u>

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

Staff costs were as follows:

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

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

	2022 No.	2021 No.
£60,000 – £69,999	1	–
£80,000 – £89,999	–	1
£90,000 – £99,999	1	–
	<u>1</u>	<u>–</u>

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
	<u>17.7</u>	<u>16.6</u>	<u>18.3</u>	<u>16.8</u>

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 leasehold land and buildings £	Office equipment £	Fixtures and fittings £	Total £
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
Depreciation				
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
Net book value				
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 systems £	Total £
Cost		
At the start of the year	206,672	206,672
At the end of the year	206,672	206,672
Amortisation		
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
Net book value		
At the end of the year	-	-
At the start of the year	43,097	43,097

12 Listed investments

	2022 £	2021 £
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 £	2021 £
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

The Operational Research Society

Notes to the financial statements

For the year ended 31 December 2022

13 Debtors

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

14 Creditors: amounts falling due within one year

	2022 £	2021 £
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
	<u>206,470</u>	<u>172,265</u>

15 Deferred income

	2022 £	2021 £
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
	<u>43,859</u>	<u>31,051</u>

Deferred income consists of 2023 subscription income paid in advance.

The Operational Research Society

Notes to the financial statements

For the year ended 31 December 2022

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

	Unrestricted £	Restricted £	Total funds £
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
Net assets at 31 December 2022	2,312,113	65,560	2,377,673

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

	Unrestricted £	Restricted £	Total funds £
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
Net assets at 31 December 2021	2,577,965	73,348	2,651,313

17a Movements in funds (current year)

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

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

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	2021	2022	2021
	£	£	£	£
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	-	-
	260,580	263,610	16,659	13,938

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 Kloprogge	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 Bouzاهر	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		

Tocher 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 Maclver	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 Noortgate	2017	V Caldwell	2019		
		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 Zagafos	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 Papoulias	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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