



THE
OPERATIONAL
RESEARCH
SOCIETY

Annual Report and Accounts

for the year ended 31 December 2017

The Operational Research Society
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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 2017 under the energetic and able leadership of Ruth Kaufman and sets out our plans for the future.

This is a privileged time to be president of the Society with both operational research (OR) and the OR Society being in good health. In the age of digital disruption, big data and artificial intelligence the demand for OR skills remains strong, and most OR and analytics practitioner teams are currently expanding. The challenges facing the world today, when coupled with the growth in computer power and the explosion in available data, make it more important than ever that decisions are based on the high quality modelling that OR brings to bear on problems.

This report describes some of the OR Society's key achievements during 2017 in responding to the opportunities and challenges presented by a fast changing world. These have included: putting in place our new publishing contract with Taylor and Francis; running our first joint conference with the Institute for Mathematics and its Applications; concluding our agreement with INFORMS to offer the Certified Analytics Professional certification (CAP); and piloting the award of two MSc scholarships to assist those at the start of their OR careers.

During the year we have increased our staff numbers, and this has enabled us to take on a broader range of activities. But it is the commitment and dedication of these staff members, together with our great many volunteers, that makes the real difference in enabling us to achieve all we do. We are greatly appreciative of all the work they do and, in addition, the support our volunteers receive from their employers in industry, government and academia.

In 2018 we will be building on the strategic priorities that Ruth has bequeathed to us relating to visibility, reach, engagement, capability and research. In addition, we will advance the Society's diversity programme and ensure that we support the OR community on Brexit as its implications for us become clearer. There is much to do, and I am sure there will be many challenges along the way; but we are in a better position than ever to achieve our strategic aims.

John Hopes
The OR Society President 2018-2019

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 – such as rapid advances in data and technology, and the unsettled social, economic and political environment – our activities and services must adapt and expand accordingly, as these changes offer great opportunities for the OR discipline, OR professionals, and The OR Society, as well as great challenges.

Review of the Year 2017

2017 was the second year of our 3 to 5-year strategic planning period, during which we are pursuing five main priorities on top of the 'Business as Usual' services and activities. As noted in last year's report, these are: building the reach of the ORS, so that our products and services are accessed by a wider audience; building the visibility of OR, the holy grail of OR professionals for many years; strengthening the community, fostering activity and interaction amongst OR professionals; nurturing research; and building OR capacity ('the people pipeline').

Highlights of the Year

Four things happened this year that could have longer-term influence on everything we do: a contract, an event, an agreement, and an award.

The most important development for the Society's medium-term future was the re-letting of the publications contract. Our publications are crucial to the world of OR research, reinforcing the Society's international reputation; and the payment we receive from our publisher for the rights to distribute our five peer-reviewed journals is the Society's largest source of funding. After a very close contest between five publishers (the number of bidders is itself a testament to the quality and value of the journals), we selected Taylor & Francis as our new publisher. This provides us with a guaranteed income for the next five years, as well as presenting an opportunity to review how we make the most of the rich material published in our journals. We thank our previous publishers, Palgrave, for their support over many years.

The event was our first ever joint conference with the Institute for Mathematics and its Applications (IMA). *The Mathematics of OR: Innovating Mathematics for New Industrial Challenges*, held at Aston University in April, attracted many more participants than expected, and proved to be an excellent forum for learning and knowledge exchange. As a result of its success, we hope that it will become a regular biennial fixture.

The agreement with INFORMS, our sister society in the US, sets up The OR Society as the UK portal for

Certified Analytics Professional certification. CAP is a great step forward in enabling people working in analytics to demonstrate their competence and continuing commitment to professional excellence; and importantly, also provides significant supporting materials. These represent a treasure trove of information and advice to help ensure that the best practices of OR are understood and applied by analytics professionals. The launch event for the new CAP, held in early 2018, showed just how valuable this can be. CAP is available to OR Society members at the same substantially reduced rate as for INFORMS members.

In summer 2017, the Society piloted the award of two MSc scholarships. These are intended to help UK students who might not otherwise undertake an MSc in OR. Our aim is to raise the visibility of OR as a subject for study to UK students considering a postgraduate course, to begin to address the serious shortage of OR skills being experienced both in academia and in practice. The quality of applicants was outstanding, and we plan to continue the pilot in 2018.

Other Achievements during the year

Conferences and Events

We ran a full programme of conferences and events, designed to enable OR and associated professionals to share developments at the cutting edge of our rapidly-developing fields, and to connect with colleagues.

These included, in addition to the 'Mathematics of OR' conference mentioned above:

- The three-day Young to OR conference, YtOR20 held in London, in April, with nearly 100 early career professionals from practice and research. This event has a unique mix of talks and activities aimed at building skills as well as sharing knowledge, and was greatly appreciated by participants;
- The Annual Analytics Summit, run in June during London Technology Week in combination with the Royal Statistics Society, which attracted around 140 delegates from industry, government and academia. TAAS comprised a combination of plenary presentations and associated discussion together with more hands-on workshops. Data ethics was one of its key focal issues, including both presentations and an extended Q&A session with an expert panel;
- The AGM, which was for the first time in many years held as a stand-alone event and hosted by our North West regional group. Our speaker, Professor Keith Still from MMU, provided a gripping description of his work on Crowd Science. We intend to hold AGMs in each of the regions in turn: in 2018, we will be hosted by SWORDS in Cardiff;
- The ISMOR Defence conference, jointly organised by the Defence Special Interest Group and the UK Ministry of Defence, held at Royal Holloway University in July;
- The three-day Annual Conference (OR59), held in September at Loughborough University, which continued the ethics theme with 'Ethics and Governance in OR' forming one of more than 20 streams. As well as the packed scientific programme, activities included a buzzing 'Meet the Editors' panel session, a debate on open data and privacy, and a conference dinner in the inspiring setting of the national space centre; and
- Our annual Careers Open Day, attended by 25 exhibitors and 250 students.

Two regular half-day events complete the Society's collection of regular offerings; the annual Beale and Blackett Lectures. The Beale Lecture was given by Professor John Friend, talking about the past and future of his work on structuring public policy decisions. It was accompanied by a lecture from Martin Takac, winner of the 2014 Doctoral Award, on his work on big data and optimization. The Blackett Lecture was given by Professor Sir Nigel Shadbolt of Jesus College Oxford, opening windows into the world of web science.

The ORS Special Interest Groups (SIGs) and Regional Societies continue to operate at the roots of the Society. A small number of SIGs have been disbanded during 2017 and a greater number have started up, with a total of 16 now running. Half of these have been actively holding meetings this year with 13 being organised, while others have taken an active role in streams at the annual conference. Nine of the ten

Regional Societies have been active during the year, holding some 25 meetings. We were particularly pleased to be able to support the Scottish OR Group's hosting of the EURO Working Group's International Workshop on Lot Sizing.

None of this would be possible without the hard work of the office staff, and a great many volunteers – especially our conference chairs and committees – and we greatly appreciate their support.

Publications

The Society publishes five academic peer-reviewed journals: *The Journal of the Operational Research Society*, *European Journal of Information Systems*, *Knowledge Management Research & Practice*, *Journal of Simulation*, and *Health Systems*. These curate, document and disseminate a broad range of OR work (predominantly research, but also including practical applications), from authors worldwide and to an international audience. Their importance has been mentioned above, under the Highlights section, and can also be seen in the Finance section and the accounts.

Preparations continued for the launch of our forthcoming *Journal of Business Analytics*, with the appointment of the editorial board, with two eminent experts, Professors Dursun Delen and Sudhah Ram, as editors-in-chief.

A promising development in 2017 has been the establishment of a memorandum of understanding with the Association of Information Systems (AIS) to enable selected articles from EJIS to be available to AIS members through the AIS electronic library. This is expected to increase the exposure of EJIS, especially in the USA.

We also continued to publish *Impact*, a biannual magazine containing a broad range of accessible material about OR in practice, which is the cornerstone of our outreach activity; and *Inside OR*, our monthly members' magazine.

Our thanks go to the Society's office staff, to Palgrave/Springer for their professionalism and support during the year of handover to our new publishers, and to all the editors of Society publications and their editorial teams for the work they have done to produce and promote their journals which showcase the contributions and developments in OR and related disciplines.

Training

During 2017 the Society delivered 23 courses covering a range of OR topics, attracting a total of nearly 200 delegates. The courses were well received by participants with the average score being over 8.5 out of 10 for course content and teaching. We also completed a strategic review of the training programme which resulted in the identification of short, medium and longer term activities to expand our training through improved targeting of suitable topics, and making more use of a variety of training approaches.

OR in Schools (ORiS) and OR careers

The ORiS initiative, which had stalled owing to long-term staff sickness, has been reinvigorated. We have developed a programme of training for our school volunteers, which has been extremely well-received. We've had 34 people complete the training, and 100% would recommend the course to others with feedback from attendees such as, 'Maths was not my favourite subject at school but I found seeing the application of maths to making business decisions fascinating' and 'Very interesting overview of activities and resources for introducing OR to school children.' Training covers learning to use the variety of materials we have developed for introducing schoolchildren to the power of OR. A total of 17 school visits from staff and volunteers reached hundreds of students, generating feedback such as:

- 'I thought it was very brilliant that it taught us how maths is like in the real world and brought us new skills like how to work out profit.';
- 'It was good and fun and made me realise about maths out of school.';
- 'I liked making the different combinations and it showed what maths you need in the real world.'

We have also attended 24 careers fairs at schools and universities, and a number of events organised to excite both children and adults about maths and science, including Techniquet, Big Bang Fairs and New Scientist Live.

Pro Bono OR

The Pro Bono OR scheme provides a showcase for OR and its benefits, opportunities for members to engage in exciting and novel work, and the chance for our profession to make a positive difference to a wide variety of charities and their beneficiaries. 2017 was a difficult year owing to staff sickness, but even so, 16 projects were completed for organisations as varied as Save the Rhino, Drug Line Lanc and The Big Issue Foundation. We supplied 121 volunteer-days, and feedback from charities and volunteers continues to be good.

We signed a Memorandum of Understanding with the Small Charities Coalition, which brings the list of organisations we work with to 30; and we provided advice to the Royal Statistical Society to help them establish their own pilot scheme, 'Statistics for Good'.

Other items

We added a new membership benefit, giving members free access to more than 7,000 online publications via the EBSCOhost service; and four further OR-related publications from Taylor & Francis.

One of the most important events on the academic horizon is the forthcoming REF2021. As a nominating body, we identified and nominated panel members from the OR community to take part in the assessments. This was a major undertaking and we are grateful to all those who have contributed, and even more, to those who agreed to be nominated.

Earlier in the year, we had responded to the HEFCE consultation on REF2021, as part of the CMS (Council for Mathematical Sciences) response. We also highlighted the perspective of OR in response to the Science Council consultation on: *Priorities for UK Science; the Bond Review of Knowledge Exchange in the Mathematical Sciences*, and the Select Committee on Science and Technology enquiry into *Algorithms in Decision-Making*.

As part of our initiative to address issues around diversity and inclusion, we helped pilot, and subsequently took part in, the Science Council's benchmarking scheme. This revealed that whilst we are on a par with many other learned societies, there is more we can be doing; and a programme of action is being developed accordingly.

One unexpected call on our funds came when a team of students, Peter Riley (Warwick University), Adam Green (Cardiff University) and Anna Scholes (Nottingham University), doing their sandwich placement year at HMRC, reached the final of the first ever INFORMS student competition. As neither INFORMS nor they had expected this, there was no funding planned to enable them to get to the finals in Las Vegas. The Society stepped in, the students presented at the final – and won. Congratulations to all concerned.

Members, Affiliates and Fellows

At the end of the year, The OR Society had 2,928 members. The Analytics Network boasted approximately 1,500 members, the Society's LinkedIn group had 4,248 members, and we had 2,555 Twitter followers. In addition, there were seven corporate partners – AWE, CORDA (part of BAe Systems), Home Office, Ministry of Justice, NATS, NHS Wales and Royal Bank of Scotland – representing 331 affiliates.

There were 327 accreditees, comprising 144 Fellows, 77 Associate Fellows, 61 Associates and 45 Candidate Associates.

Awards

- **Goodeve Medal** (awarded for best paper published in JORS in 2016): Awarded to Aimée Backiel, Bart Baesens and Gerda Claeskens 'Predicting time-to-churn of prepaid mobile telephone customers using social network analysis', *Journal of the Operational Research Society* (2016) 67, 1135–1145.
- **Stafford Beer Medal** (awarded for best paper published in EJIS in 2016): Awarded to Anastasia Utesheva, Jason R Simpson, and Dubravka Cecez-Kecmanovic 'Identity metamorphoses in digital disruption: a relational theory of identity', *European Journal of Information Systems*, 25 344-363.
- **Tocher Medal** (awarded for best paper published in JOS in 2015/2016): Awarded to Jie Xu, Edward Huang, Liam Hsieh, Loo Hay Lee, Qing-Shan Jia and Chun-Hung Chen 'Simulation optimization in the era of Industrial 4.0 and the Industrial Internet', *Journal of Simulation*, 10 310-320.
- **Griffiths Medal** (awarded for best paper published in HS in 2015/2016): Awarded to Mihail Mihaylov, Pieter Smet, Wim Van Den Noortgate and Greet Vanden Berghe 'Facilitating the transition from manual to automated nurse rostering', *Health Systems*, 5 120-131.
- **Doctoral Award** (awarded for the most distinguished body of research leading to the award of a doctorate in the field of OR in 2016): Awarded to Itamar Megiddo, University of Strathclyde.
- **May Hicks Award** (awarded for the best student project): Jointly awarded to Ghyslain Gaillard (University of Southampton), Ruth Walton (University of Southampton) and Connor Wilson (University of Strathclyde).
- **Elsie Cropper Award** (awarded for the best paper presented at the Young to OR conference): Awarded to Jordy Batselier (University of Ghent).
- **President's Medal** (awarded for the best practical application of OR): Awarded to Oliver Buhlinger (Hayward Tyler Ltd), Chris Henzel (Hayward Tyler Ltd), Martin Clocherty (Hayward Tyler Ltd), Morgan Knapton (Hayward Tyler Ltd), Hara Papachristou (Lanner Group Ltd) and Chris Legge (Lanner Group Ltd) for 'WITNESS Simulation Platform to Create a 'Virtual Factory' for Hayward Tyler's Strategic Manufacturing Operations'.
- **Beale Medal** (awarded for a sustained contribution to the theory, practice, or philosophy of OR): Awarded to Mike Jackson.
- **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 Edmund Burke.
- **Honorary Membership**: Awarded to Alan Wilson.

Structure of the Funds

The Society's funds are unrestricted but are organised into:

- the General Fund, through which the ongoing operations of the Society are conducted;
- the Reserve Fund, comprising 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; and
- the Designated Award Fund which represents 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 (General Fund) showed a deficit of nearly £144k during the year, on a turnover of just over £1.1m. This compares with a surplus of £84k in 2016. The Board had budgeted for a deficit of up to £200k, as the high level of reserves made it possible to invest in strategic objectives. The actual outcome reflects a mix of higher salary spend than planned following a Board decision to employ additional staff for sickness cover and to meet strategic aims, together with lower than budgeted income from sales of publications and from conferences, offset by a payment from the new publishers to support the cost of transfer.

The publications income was £152k below the 2016 level, largely as a result of changes in Palgrave's income allocation approach. This was offset to a large degree by an initial payment of £100k from our new publishers, Taylor & Francis, to cover transition costs, giving an overall decline in publications income from 2016 of £52k. It is anticipated that in 2018 publications income will rebound under the new publishing contract.

The conference income, which was £84k below budget and £37k below the 2016 level, reflects disappointing attendance at our Young to OR and OR59 events. This is a strategic issue for us that will be a focus for attention in 2018. A Knowledge Management conference originally planned for 2017 was re-scheduled to 2019, accounting for some £25k of budgeted income.

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 2017 contributed over £630k 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.

At year end, the Society employed 17 members of staff (15.7 full-time-equivalents), compared to 14 at the end of 2016.

Assets, Reserves and Investments

The total net assets of the Society increased slightly to £2.605m over the year, with the deficit on income and expenditure being overturned by investment income and a net £123k capital gain (realised and unrealised) on our investment funds. This gain reflects the positive movements in stock markets during the year in line with

global economic growth and despite the early signs of interest rate increases and withdrawal of quantitative easing.

It is important that the Society maintains an appropriate level of reserves in relation to perceived financial risks. During the year the Board reviewed and revised the Society's reserves policy. In setting its reserve policy, the Board distinguished between the funds held in the General Fund, which arise from the normal operating activities of the Society, and the Reserve Fund held to ensure that the Society can continue long-term operations in the event of financial risks materialising. The policy review established revised minimum and maximum levels for the amount required in the Reserve Fund. The existing policy based its suggested levels on the income generated by its publications income. This approach reflected the critical dependence of the Society on its journal income, but did not fully recognise that as income grew or decreased then reserves would also move up and down. This policy would mean that the benefits of a growing income would not be fully felt and that a reduction in income would cause a release of reserves which could cause disruption the following year if income then grew again. It was agreed that a steadier approach to reserves was needed and that it should be based on the costs of the Society rather than the income.

Based on the annual fixed costs of running The Society, one year's costs of £760k should be a minimum value for the reserves, and the maximum value would then be two years' costs giving a value of £1.52 million. This would cover any growth of The Society over the next few years and release funds to further The Society's aims.

At 31 December 2017, the Society's reserves - its investments and cash held within the Reserve Fund - amounted to £1.6m. The reserves are therefore just above their prescribed maximum. 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.

Risk

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 five years of the contract, by transferring much 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. In addition, beyond the contract period our exposure to the risk is unchanged.

A key strategic risk is that OR is not seen as relevant in the rapidly changing environment, as big data and increasing computing power drive technical developments, and as new discipline descriptions compete for attention and funding. We have been addressing 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. 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 is not seen as relevant to OR professionals. We have been addressing this through the whole range of activities addressing our strategic goals, and described elsewhere in this report.

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 Secretary & General Manager. No remuneration is payable to trustees for service on the Board.

Basis for Remuneration

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

Salaries on recruitment are based on positioning the recruit on a salary spine depending on job weight and market factors. Salary changes are considered annually in relation to inflation, staff performance and affordability.

Voluntary Contributions

The Society's work in 2017 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.

In addition to this, more than two hundred members have volunteered, or offered to volunteer, 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 5,000 person-days were contributed in 2017. If this time is valued at £500 per day, its value is £2.5M. The Society is most grateful to all who contributed voluntary effort, without which the Society could not accomplish its goals.

Objectives for 2018

In high level terms our objectives for the next one to three years are the same as for 2016 and 2017: to build the Society's **reach** (the number of people aware of or benefiting from the Society's activities), the **visibility** of OR itself, and the **engagement** of OR people in the profession and wider community; to help develop the **people pipeline**; and to nurture OR **research**.

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

- preparing a suite of materials providing an accessible guide to OR methodology;
- launching a *Journal of Business Analytics*;
- launching a redesigned website, which will offer a better user experience and will improve our ability to develop web-based services;
- deploying the new website, social media campaigns and other marketing activity to raise the brand profile of OR itself;
- establishing a working group to assess the potential impact of Brexit on OR Society members and the OR community and recommend actions that the Society might take;
- relaunching and reinvigorating the OR Society's Analytics Network;
- developing a travelling exhibition to raise public awareness of OR;
- exploring the opportunity to launch OR apprenticeships in collaboration with HORAF and COPIOR;
- ensuring that the Society is compliant with the new GDPR data privacy legislation;
- moving forward with plans to offer Registered Scientist as a stepping stone to full chartered status;
- making OR60 a springboard for a turnaround in attendance at the Society's main conference;
- finalising and implementing new training, events, member recruitment and retention, journal ratings, communications and marketing strategies;
- finalising and implementing our diversity plan;
- developing a plan to support the OR 'people pipeline', following an external review of the supply chain;
- developing a national database of academic communities related to OR;
- taking actions to foster the development of research capabilities in OR communities.

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 2017 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.

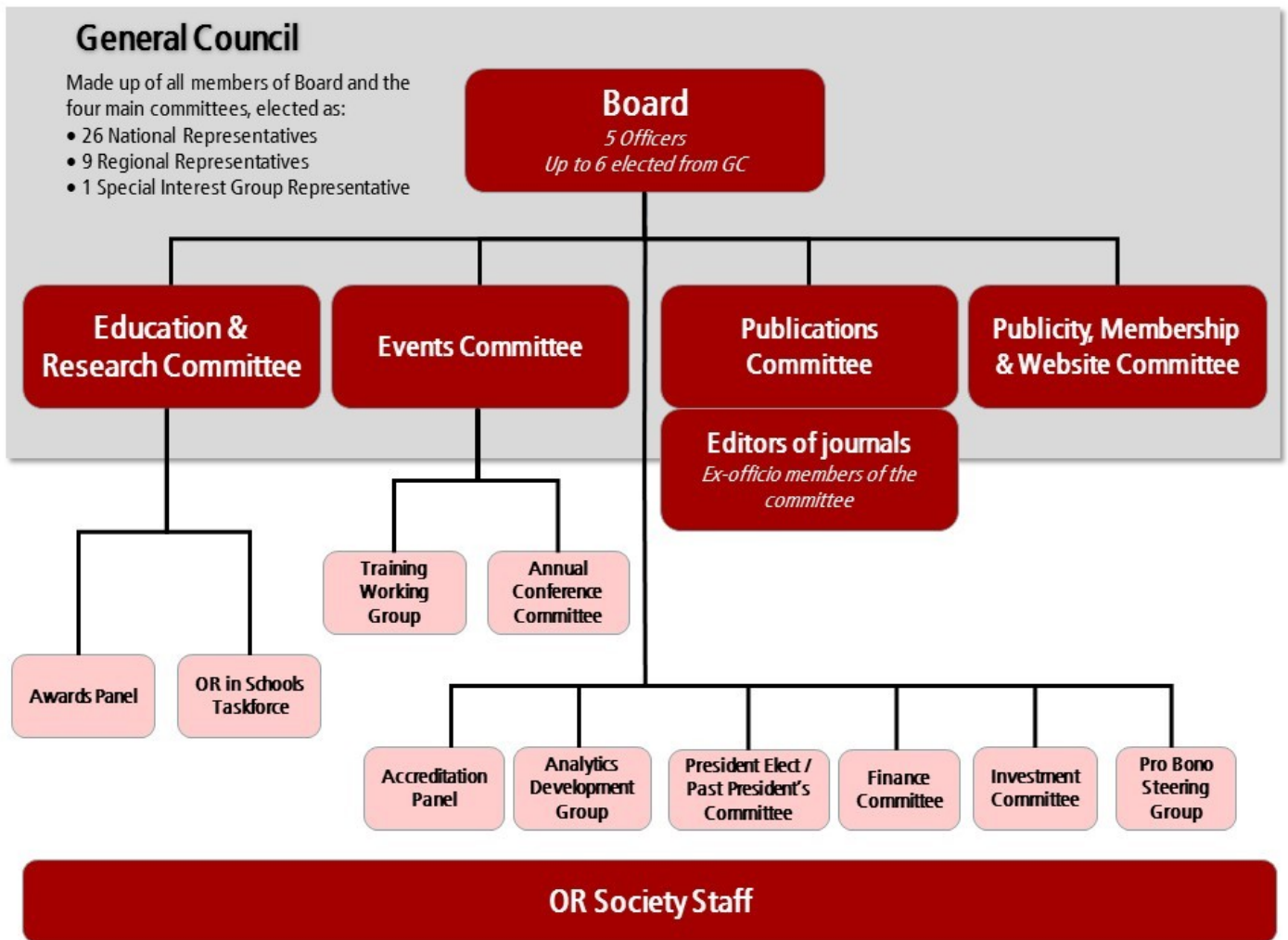
The following served as members of the Board in 2017

R A KAUFMAN President	P ALBORES
J R HOPES President Elect	J BATSON
S PETROVIC Vice President	S BEG
A P ROBINSON Vice President	R W EGGLESE
J E WILLIAMS Hon. Treasurer	M H KUNC
	F A O'BRIEN

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 & Research	(b)
Events	(a), (b)
Finance	Management of financial aspects
Investment	Management of investments
Past President's/President Elect's	Elections, planning & administrative reviews
Pro Bono Steering Group	(a)
Publications	(a)
Publicity, Membership & Website	(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 Secretary & General Manager 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:

Mazars LLP
45 Church Street
BIRMINGHAM
B3 2RT

Its Investment Adviser is:

Tom Quicke
Investec
2 Gresham Street
LONDON
EC2V 7QN

Its Stockbrokers are:

Investec
2 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 2015).

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 online 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 online 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 online 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.

Statements as to disclosure of information to auditors

In accordance with Company Law, as the charity's trustees, we certify that:

- so far as we are aware, there is no relevant audit information of which the Charity's Auditor is unaware; and
- we have taken all the steps that we ought to have taken in order to make ourselves aware of any relevant audit information and to establish that the Charity's Auditor is aware of that information.

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

Company law requires the elected officers and members of the Board to prepare financial statements for each year which give a true and fair view of the state of affairs of the Society and of the surplus or deficit of the Society for that period. In preparing those financial statements, the elected officers and members of the Board are required to:

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

The elected officers and members of the Board are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the Society and to enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the Society and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

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 2017, two members of the Board completed their term of office: M H Kunc and F A O'Brien.

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.

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 2017, and recommend their adoption by the Society at its Annual General Meeting.

J R HOPES President

J E WILLIAMS Hon Treasurer

P ALBORES

J BATSON

S BEG

A R CLARK

R W EGGLESE

R A KAUFMAN

S PETROVIC

A P ROBINSON

Being the elected officers and members of the Board of the Operational Research Society as at 17 May 2018.

I G Blackett

Secretary & General Manager

17 May 2018

Accounts

for the year ended 31 December 2017

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

Opinion

We have audited the financial statements of Operational Research Society (the 'charity') for the year ended 31 December 2017 which comprise the Statement of Financial Activities, the Balance Sheet, the Statement of Cash Flows, and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including 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 charity's affairs as at 31 December 2017 and of its income and expenditure for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the 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 charity 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.

Use of the Audit Report

This report is made solely to the 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 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 company and the company's members as a body for our audit work, for this report, or for the opinions we have formed.

Conclusions Relating to Going Concern

We have nothing to report in respect of the following matters in relation to which the ISAs (UK) require us to report to you where:

- the trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the trustees' have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the charity's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

Other Information

The trustees are responsible for the other information. The other information comprises the information included in the annual report other than the financial statements and our auditor's report thereon. 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.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

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' Report which includes the Directors' Report prepared for the purposes of company law, for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the Directors' Report included within the Trustees' Report has been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In light of the knowledge and understanding of the charity and its environment obtained in the course of the audit, we have not identified material misstatements in the Trustees' Report included within the 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 and proper 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 specific by law are not made; or
- we have not received all the information and explanations we require for our audit.
- the trustees were not entitled to prepare the financial statements in accordance with the small companies regime and take advantage of the small companies' exemption in preparing the Trustees' Report and from the requirement to prepare a Strategic Report.

Responsibilities of Trustees

As explained more fully in the trustees' responsibilities statement set out on page X, 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 charity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charity 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.

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

Ian Holder
(Senior Statutory Auditor)
for and on behalf of Mazars LLP
Chartered Accountants and Statutory Auditor
Mazars LLP
45 Church Street
Birmingham
B3 2RT

OPERATIONAL RESEARCH SOCIETY

STATEMENT OF FINANCIAL ACTIVITIES FOR THE YEAR ENDED 31 DECEMBER 2017

		-----Unrestricted Funds-----			2017	2016
		General	Reserve	Designated	£	£
	Note	Fund	Fund	Award	Total	Total
				Fund	Funds	Funds
INCOME FROM :						
Charitable activities :						
Subscriptions		137,801	-	-	137,801	144,544
Events and Conferences		130,728	-	-	130,728	167,650
Training		85,313	-	-	85,313	112,394
Publications	3	768,194	-	-	768,194	820,218
Accreditation		8,851	-	-	8,851	8,357
Websites / Digital Services		4,875	-	-	4,875	4,624
			-	-		
		1,135,762	-	-	1,135,762	1,257,787
Investment Income	7	0	48,299	1,983	50,282	46,112
Total Income		1,135,762	48,299	1,983	1,186,044	1,303,899
EXPENDITURE ON :						
Raising Funds						
Investment Management Costs		-	11,318	-	11,318	10,169
Direct charitable expenditure :						
Subscriptions		102,939	832	-	103,771	101,349
Events and Conferences		241,285	620	-	241,905	223,649
Training		80,542	198	-	80,740	99,434
Publications	3	244,118	938	-	245,056	242,594
Accreditation		3,737	28	-	3,765	4,130
Websites / Digital Services		152,116	1,170	-	153,286	128,280
Other Charitable Expenditure	4	344,935	1,914	1,500	348,349	280,722
Governance and Support Costs	5	110,054	2,801	-	112,855	103,856
		1,279,726	8,501	1,500	1,289,727	1,184,014
Total Expenditure	6	1,279,726	19,819	1,500	1,301,045	1,194,183
Net gains/(losses) on Investments	18	-	123,282	(207)	123,075	135,216
NET INCOME/(EXPENDITURE) and NET MOVEMENT IN FUNDS FOR THE YEAR		(143,964)	151,762	276	8,074	244,932
Reconciliation of funds :						
Total funds brought forward		926,594	1,612,492	57,694	2,596,780	2,351,848
Total funds carried forward		782,630	1,764,254	57,970	2,604,854	2,596,780

The notes on pages 24 to 32 form part of these accounts.

The statement of financial activities includes all gains and losses recognised in the year. All income and expenditure derive from continuing activities.

OPERATIONAL RESEARCH SOCIETY

(A company limited by guarantee. No. 663819)

BALANCE SHEET - 31 DECEMBER 2017

	<u>Note</u>	<u>2017</u> £	<u>2016</u> £
FIXED ASSETS			
Fixed Assets : Tangible	8	192,649	198,078
Intangible	8	108,009	17,263
Investments :			
Listed at Market Value	9	1,554,759	1,416,429
Cash Deposited with Investment Brokers		48,999	29,019
Charities Aid Foundation	10	69,675	67,899
		<u>1,974,091</u>	<u>1,728,688</u>
CURRENT ASSETS			
Debtors	11	686,669	877,970
Cash at Bank and In Hand		108,268	110,559
		<u>794,937</u>	<u>988,529</u>
CREDITORS (amounts falling due within one year)	12	164,174	120,437
NET CURRENT ASSETS		<u>630,763</u>	<u>868,092</u>
TOTAL ASSETS LESS CURRENT LIABILITIES		<u>2,604,854</u>	<u>2,596,780</u>
FUNDS			
General Fund		782,630	926,594
Reserve Fund	15(1)	1,764,254	1,612,492
Designated Award Fund	15(2)	57,970	57,694
TOTAL FUNDS		<u>2,604,854</u>	<u>2,596,780</u>

These financial statements have been prepared in accordance with the special provisions relating to companies subject to the small companies regime within Part 15 of the Companies Act 2006.

J. E. WILLIAMS
Honorary Treasurer

J. R. HOPES
President

The notes on pages 24 to 32 form part of these accounts.

OPERATIONAL RESEARCH SOCIETY

STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2017

	<u>2017</u> £	<u>2016</u> £
Reconciliation of net incoming resources to net cashflow from operating activities :		
Net Movement in Funds	8,074	244,932
Depreciation Charge - Tangible Assets	15,019	16,644
Depreciation Charge - Intangible Assets	20,008	29,814
Loss on Disposal of Fixed Assets	0	4,197
Decrease/(Increase) in Debtors	191,301	(91,389)
Increase/(Decrease) in Creditors	43,737	(129,741)
(Gains)/Losses on Investments	(123,075)	(135,216)
Investment Income	(50,282)	(46,112)
Cash Flows from Operating Activities	<u>104,782</u>	<u>(106,871)</u>
Investment Income	48,299	43,836
Purchase of Tangible Assets	(9,590)	(30,897)
Purchase of Intangible Assets	(110,754)	(3,485)
Purchase of Investments	(151,710)	(225,040)
Proceeds on Disposal of Investments	136,662	163,304
Cash Flows from Investing Activities	<u>(87,093)</u>	<u>(52,282)</u>
Increase/(Decrease) in Cash and Cash Equivalents in the Year	17,689	(159,153)
Cash and Cash Equivalents at the Beginning of the Year	139,578	298,731
Cash and Cash Equivalents at the End of the Year	<u>157,267</u>	<u>139,578</u>

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017

1 ACCOUNTING POLICIES

(1) **Basis of preparation**

The accounts have been prepared in accordance with the Companies Act 2006, the Charities Act 2011, the Charities Statement of Recommended Practice (FRS 102), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) and under the historical cost convention in accordance with applicable Accounting Standards as modified by the accounting policy for investments quoted on a recognised stock exchange, which are stated at market value (see 1(8) below).

The Operational Research Society meets the definition of a public benefit society under FRS 102.

(2) **Preparation of the accounts on a going concern basis**

The Operational Research Society operates as a going concern and the trustees are of the view that it will continue to do so for the foreseeable future.

(3) **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 estimate that has the most significant effect relates to intangible fixed assets. 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.

(4) **Designation of funds**

Income and expenditure arising from the normal charitable activities of the Society is included within the General Fund.

The Reserve Fund consists of resources of the Society which are represented by land and buildings, fixed asset investments and cash deposited with the Society's investment brokers.

The Designated Award Fund represents a legacy received in 2002 which will be used to fund an annual award.

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 £760k to keep the charity viable whilst alternative funding is found.

The maximum level is to be set at 2 years running costs or £1.52 million

(5) **Dividends and investment income**

Dividends and investment income are recognised when receivable.

(6) **Other income and expenditure**

Income and expenditure other than dividends are accounted for on an accruals basis.

(7) **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. This item was £Nil in 2017.(2016 - £Nil).

(8) **Investments**

Investments quoted on a recognised stock exchange are included in the accounts at their market value.

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017

1 ACCOUNTING POLICIES (continued)

(9) Tangible and Intangible fixed assets

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

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

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

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

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

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

(10) 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.

(11) Cash at bank and in hand

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

(12) 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.

(13) Pensions

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

(14) 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.

(15) Financial instruments

The Society only has financial assets and financial liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are initially recognised at transaction value and subsequently measured at their settlement value.

2 LEGAL STATUS OF THE SOCIETY

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.

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

3 PUBLICATIONS	<u>2017</u>	<u>2016</u>
	£	£
Incoming resources :		
Journal / KMRP / JOS	550,623	610,988
Inside OR	1,868	4,233
EJIS / Health Systems	212,869	203,757
Other Publications	<u>2,834</u>	<u>1,240</u>
	<u>768,194</u>	<u>820,218</u>
Resources used :		
Journal / KMRP / JOS	75,263	67,633
Inside OR	103,660	105,859
EJIS / Health Systems	56,488	42,372
Impact Magazine	6,198	23,657
Other Publications	<u>3,447</u>	<u>3,073</u>
	<u>245,056</u>	<u>242,594</u>
 4 OTHER DIRECT CHARITABLE EXPENDITURE		
 Non-revenue earning activities in pursuit of charitable aims		
IAOR Online - Members access	7,011	8,427
Library	10,908	5,000
Foreign Affairs Expenses	5,543	3,119
Regional Societies	7,576	4,235
Special Interest Groups	8,087	3,936
Public Information about OR :		
Science of Better	13,016	17,494
Learn about OR	106,258	58,015
General Publicity	37,420	48,016
Third Sector Pro Bono	31,010	33,342
Sponsorship of OR Conferences	0	5,000
Medals, Awards and Scholarships	24,098	6,411
Strategic Initiatives	93,371	87,727
Other Costs	<u>4,051</u>	<u>-</u>
Total	<u>348,349</u>	<u>280,722</u>
 5 GOVERNANCE AND SUPPORT COSTS		
Board and Committees	85,330	77,184
Auditors' Fees :		
for audit	6,550	8,400
for other services	1,044	1,835
Other Legal and Professional Fees	19,931	16,437
	<u>112,855</u>	<u>103,856</u>

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

6 TOTAL RESOURCES EXPENDED

Expenditure analysed by type of cost :

	Staff Costs	Other Costs	Depreciation &Amortisation	Total 2017	Total 2016
	£	£	£	£	£
Investment Management Costs	-	11,318	-	11,318	10,169
Subscriptions	78,064	24,473	1,234	103,771	101,349
Events and Conferences	58,161	181,181	2,563	241,905	223,649
Training	18,538	61,909	293	80,740	99,434
Publications	88,010	155,663	1,383	245,056	242,594
Accreditation	2,618	565	582	3,765	4,130
Websites	109,821	18,582	24,883	153,286	128,280
Other Charitable Expenditure	179,730	164,530	4,089	348,349	280,722
Governance and Support Costs	55,032	57,823	0	112,855	103,856
	<u>589,974</u>	<u>676,044</u>	<u>35,027</u>	<u>1,301,045</u>	<u>1,194,183</u>

Staff costs :

Wages and Salaries	495,846	424,309
Social Security Costs	38,578	42,049
Pension Costs	55,550	45,364
	<u>589,974</u>	<u>511,722</u>

The average number of employees of the Society, calculated on a full time equivalent basis, during the year was :

	2017		2016	
	FTE	Headcount	FTE	Headcount
Charitable activities	10.1	11.9	9.3	9.6
Management and administration	3.1	3.8	2.9	3.0
	<u>13.2</u>	<u>15.7</u>	<u>12.2</u>	<u>12.6</u>

During this and the previous year one employee of the Society earned between £70,000 and £80,000, excluding pension contributions. Contributions of £8,359 were paid to their pension scheme (2016 - £8,266).

The key management personnel of the Society comprise the trustees and the Secretary and General Manager. The total employee benefits of the key management personnel of the Society were £85,869 (2016 - £84,575)

No remuneration was paid or is payable to Trustees for service on the Board for the year (2016 - £Nil)

During the year 10 Trustees (2016 - 10 Trustees) received a total of £8,509 (2016 - £4,631) in reimbursement of expenses incurred on Society business .
Payments were made to Dr F O'Brien £1,500 (2016 - £4,992) and Dr M Kunc £2,000 (2015 £3,000) for the supply of training courses to the Society during the year.

Other external costs include :	<u>2017</u>	<u>2016</u>
	£	£
Other Operating Leases	<u>3,655</u>	<u>4,197</u>

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

7 INTEREST RECEIVABLE AND SIMILAR INCOME

	<u>2017</u> £	<u>2016</u> £
Income from Listed Investments	48,299	43,684
Interest on Bank Deposits	0	152
Distributions - CAF	1,983	2,276
	<u>50,282</u>	<u>46,112</u>

8 FIXED ASSETS

	-----Tangible-----				Intangible
	Long Leasehold Land and <u>Buildings</u> £	Office <u>Equipment</u> £	Fixtures & <u>Fittings</u> £	<u>Total</u> £	<u>Software Systems</u> £
Cost					Cost
At 31 December 2016	314,306	107,562	50,789	472,657	751,260
Additions	-	7,026	2,564	9,590	110,754
Disposals	-			0	
At 31 December 2017	<u>314,306</u>	<u>114,588</u>	<u>53,353</u>	<u>482,247</u>	<u>862,014</u>
Depreciation					Amortisation
At 31 December 2016	144,578	93,826	36,175	274,579	733,997
Charge for the Year	6,286	6,854	1,879	15,019	20,008
Disposals	-			0	
At 31 December 2017	<u>150,864</u>	<u>100,680</u>	<u>38,054</u>	<u>289,598</u>	<u>754,005</u>
Net Book Value					Net Book Value
At 31 December 2017	<u>163,442</u>	<u>13,908</u>	<u>15,299</u>	<u>192,649</u>	<u>108,009</u>
At 31 December 2016	<u>169,728</u>	<u>13,736</u>	<u>14,614</u>	<u>198,078</u>	<u>17,263</u>

Capital expenditure authorised but not contracted for at 31 December 2017 and not provided for in the accounts amounted to £74,391 (2016 - £60,000).

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.

The Trustees do not consider that the difference can be accurately defined without the benefit of a professional valuation.

Included under software systems are assets in development for which amortisation will not be charged until the asset completion date. The value of assets in development at 31 Dec. 2017, which relate to the development of the new website is £85,609 (2016: £Nil).

Amortisation is allocated across the various expenditure categories within the Statement of Financial Activities. Please see Note 6 for further information.

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

9 LISTED INVESTMENTS AT MARKET VALUE

	<u>2017</u> £	<u>2016</u> £
Market Value at 1st January	1,416,429	1,221,016
Additions at Cost	151,710	225,040
Proceeds on Disposal	(136,662)	(163,304)
Net Investment Gain /(Loss)	123,282	133,677
Market Value at 31st December	<u>1,554,759</u>	<u>1,416,429</u>
Cost	<u>1,182,108</u>	<u>1,129,223</u>

All the above investments are either listed on a recognised stock exchange in Great Britain or are represented by unit trusts which are traded on a daily basis in the UK, and fall within the wider range of investments as defined by the Trustees Act 1961.

The Society's narrower range of investments as defined by the Trustees Act 1961 is covered by deposits held at Investec.

10 CHARITIES AID FOUNDATION

At 31 December 2017 this investment is represented by 56,058 (2016 - 56,058) shares in the FP CAF Fixed Interest B Accumulation Fund, having a market value of £69,675 (2016 - £67,899).

	<u>2017</u> £	<u>2016</u> £
Market Value at 1st January	67,899	64,084
Net Investment Gain /(Loss)	(207)	
Distributions not remitted	<u>1,983</u>	
	1,776	3,815
Market Value at 31st December	<u>69,675</u>	<u>67,899</u>
Cost	<u>56,060</u>	<u>56,060</u>

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

11 DEBTORS

	<u>2017</u>	<u>2016</u>
	£	£
Trade Debtors	45,238	91,929
Taxation Recoverable	11,104	12,593
Prepayments	24,324	15,667
Accrued Income	606,003	757,781
	<u>686,669</u>	<u>877,970</u>

12 CREDITORS

	<u>2017</u>	<u>2016</u>
	£	£
Trade Creditors	52,003	29,247
Other Creditors	20,374	-
Taxation and Social Security	27,576	-
Accruals	32,620	46,808
Deferred Income	31,601	44,382
	<u>164,174</u>	<u>120,437</u>

<i>Deferred income brought forward</i>	44,382
<i>Released to incoming resources during the year</i>	(44,382)
<i>Deferred income arising in the year</i>	<u>31,601</u>
<i>Deferred income carried forward</i>	<u>31,601</u>

Deferred income consists of 2018 subscription income paid in advance and income relating to 2018 training courses and advertising invoiced in advance.

13 FINANCIAL COMMITMENTS

At 31st December 2017 the Society had commitments under other non-cancellable operating leases as follows :

	<u>2017</u>	<u>2016</u>
	£	£
Expiry date :		
Under one year	3,655	3,655
Two to five years	9,882	13,538
Over five years	-	-
	<u>13,537</u>	<u>17,193</u>

The Society has a commitment to a service charge on the car park of the leasehold property over the next 90 years estimated at £272,700 (Under one year £3,030; Two-five years £12,120; Over five years £257,550). These items are not shown in the above table.

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

14 RELATED PARTY TRANSACTIONS

A member of Key Management Personnel is 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 £3,636 (2016 - £3,636). As at 31 December 2017 there was a creditor balance owing to Edward Street Management Limited of £Nil (2016 - £Nil).

The wife of a member of key management personnel is employed by the Society. This employee received remuneration of £22,392 (including increased hours) (2016 - £10,426) (including employers pension contributions) during the financial year.

15 DESIGNATED FUNDS

The funds of the charity include the following designated funds which have been set aside out of unrestricted funds by the trustees for specific purposes :

(1) Reserve Fund

The reserve fund consists of resources of the Society which are represented by land and buildings, fixed asset investments and a cash deposit with the Society's investment brokers, The Society operates a reserves policy that reflects its critical dependence on journal income.

(2) Designated Award Fund

The Designated Award Fund represents 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.

16 STATEMENT OF FINANCIAL ACTIVITIES : COMPARATIVE FIGURES BY INDIVIDUAL FUND

	<u>General Fund</u>		<u>Reserve Fund</u>		<u>Designated Award Fund</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
	£	£	£	£	£	£
INCOME FROM :						
Charitable activities	1,135,762	1,257,787	-	-	-	-
Investment income	0	22	48,299	43,814	1,983	2,276
Total	1,135,762	1,257,809	48,299	43,814	1,983	2,276
EXPENDITURE ON :						
Raising funds	-	-	11,318	10,169	-	-
Direct charitable expenditure	1,279,726	1,174,243	8,501	8,271	1,500	1,500
Total	1,279,726	1,174,243	19,819	18,440	1,500	1,500
Investment Gains/(Loses)	-	123,282	123,282	133,677	(207)	1,539
Net Income/(Expenditure)	(143,964)	83,566	151,762	159,051	276	2,315

OPERATIONAL RESEARCH SOCIETY

NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 2017 (continued)

17 ANALYSIS OF NET ASSETS BETWEEN FUNDS

	General Fund £	Reserve Fund £	Designated Award Fund £	Total £
Tangible Fixed Assets	29,207	163,442	-	192,649
Intangible Fixed Assets	108,009	-	-	108,009
Investments	-	1,554,759	69,675	1,624,434
Cash Deposited with Investment Brokers	-	48,999	-	48,999
Net Current Assets/Liabilities	645,414	(2,946)	(11,705)	630,763
Total Net Assets	<u>782,630</u>	<u>1,764,254</u>	<u>57,970</u>	<u>2,604,854</u>

18 RECONCILIATION OF MOVEMENTS IN UNREALISED (GAINS)/LOSSES ON INVESTMENT ASSETS

	Reserve Fund £	Designated Award Fund £	Total £
Unrealised gains at 31 Dec 2016	287,202	1,515	288,717
Realised investment (gains) / losses during the year	(39,262)	-	(39,262)
Net unrealised investment gains/ (losses) arising during the year	124,707	(207)	124,500
Unrealised (losses)/gains included in net assets at 31 Dec 2017	<u>372,647</u>	<u>1,308</u>	<u>373,955</u>

DISPOSAL OF INVESTMENTS

	Cost £	Proceeds £	Book Gain/(Loss) on Disposal £	Realised Revaluation Gain/(loss) £
Reserve Fund	<u>98,825</u>	<u>136,662</u>	(1,425)	<u>39,262</u>
Net unrealised investment gains/ (losses) arising during the year as above			124,707	
Per Statement of Financial Activities			<u>123,282</u>	

19 PENSION FUND

The Society contributes to individual pension schemes established for each individual employee. The assets of these schemes are held separately from those of the Society in independently administered funds. The pension charge represents contributions payable by the Society to the schemes and amounted to £55,550 (2016 - £45,364). Pension payments outstanding at the end of the year were £20,374 (2016 - £Nil).

History

In the autumn of 1947, at a dinner discussion convened at the Athenaeum Club in London, it was decided to form an 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
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

OR Society Awards

Companion of Operational Research

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

Goodeve Medal

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

Stafford Beer Medal

JJ Jahng	2003	R Lederman	2012
H Jain	2003	R Johnston	2012
K Ramamurthy	2003	H Koch	2013
R Lindgren	2004	E Gonzalez	2013
D Stenmark	2004	D Leidner	2013
J Ljungberg	2004	D Denyer	2014
S Sarker	2005	M Hall	2014
S Sahay	2005	E Kutsch	2014
S Madon	2006	E Lee-Kelley	2014
C Middleton	2007	P Tallon	2015
W Cukier	2007	J Gerow	2016
S K Sia	2008	J Thatcher	2016
C Soh	2008	V Grover	2016
C Ashurst	2009	A Utesheva	2017
N Doherty	2009	J Simpson	2017
J Peppard	2009	D Cecez-Kecmanovic	2017
F Thiesse	2010		
J Al-Kassab	2010		
E Fleisch	2010		
P O'Reilly	2011		
P Flanagan	2011		

Tocher Medal

K Kotiadis	2009	J Xu	2017
T Pitana	2011	E Huang	2017
E Kobayashii	2011	L Hsieh	2017
C Boer	2013	L H Lee	2017
Y Saanen	2013	Q Jia	2017
K-H Chang	2015	C Chen	2017
A-L Chang	2015		
C-Y Kuo	2015		

Cook Medal

P Jackson	2014
J Klobas	2014
D Pentland	2016
K Forsyth	2016
D MacIver	2016
M Walsh	2016
R Murray	2016
L Irvine	2016

Griffiths Medal

H Witteman	2015	P Smet	2017
J Stahl	2015	W Van Den Noortgate	2017
M Mihaylow	2017	G Vanden Berghe	2017

Doctoral Award

K Kaparis	2008	T Lidbetter	2013
A Strauss	2009	M Takac	2014
F Liberatore	2010	C Koc	2015
R Wood	2011		
K Rustogi	2012		

Beale Medal

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

Silver Medal

Sir Charles Goodeve	1964	Sir Geoffrey Vickers	1975
Professor P M Morse	1965	Mr E K G James	1979
Professor K D Tocher	1967	Professor E M L Beale	1980
Professor B H P Rivett	1968	Professor S Eilon	1982
Professor R T Eddison	1969	Professor G Dantzig	1986
Mr A M Lee	1970	Mr L V Kantorovich	1986
Professor R L Ackoff	1971		

Bronze Medal

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

President's Medal

D R Corkindale	1976	M Neighbour	2002
M L Chambers	1977	M Acutt	2003
R G Dyson	1977	P Loader	2004
M Sloman	1978	M Bryant	2004
J V Rosenhead	1979	P Bates	2004
P Doyle	1980	C McGuckin	2004
J Fenwick	1980	D Kelly	2004
G P Savage	1980	P Loucopoulos	2005
D B Gilding	1981	KG Zagrafos	2005
C Lock	1981	Y Pyrgiotis	2005
B Fokkens	1982	D Beis	2005
M Puylaert	1982	A Swain	2006
R S Hambleton	1983	A Ross	2006
A W Nimmo	1984	A Lewins	2007
C B Chapman	1985	M Sykes	2007
D F Cooper	1985	A Moon	2007
A B Cammaert	1985	M Allwright	2008
P Doyle	1987	J Ball	2008
J Saunders	1987	D Pankhurst	2008
M Pidd	1988	I Wright	2008
S R Clarke	1989	P Frangos	2010
A H Christer	1990	S Hughes	2010
K A H Kobbacy	1990	S Hammond	2011
B C Dangerfield	1991	K Slater	2011
C A Roberts	1991	C Marston	2012
M B Wright	1992	P Rose	2012
C P Thunhurst	1993	S Mardle	2013
C J Ritchie	1993	L Fildes	2013
A Khakee	1994	A Lewins	2013
K Stromberg	1994	E Husemann	2014
J J Glen	1996	D Lane	2014
H Tsoukas	1997	E Munro	2014
D B Papoulias	1997	G Owusu	2016
J H Powell	1998	S Shakya	2016
G Laporte	1999	R Dorne	2016
F Semet	1999	A Mohamed	2016
V V Dadeshidze	1999	A McCormick	2016
L J Olsson	1999	A Liret	2016
F Vasko	2000	O Buhlinger	2017
H Gilles	2000	C Henzel	2017
D Bright	2000	M Clocherty	2017
V Kocatulum	2000	M Knapton	2017
E Wolf	2000	H Papachristou	2017
J Moffat	2000	C Legge	2017
J J Race	2001		
D Burnell	2001		



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