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Annual report and financial statements

Charity registration no: 269275

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The Institute of Materials Minerals and Mining (IOM3)
is an unincorporated registered charity with registration
number 269275.



Public benefit

Materials form an integral and important part of all our lives. The materials cycle covers the exploration and extraction of raw materials from the earth, processing them into industrial/engineered materials, application of these materials, recycling of waste and the ultimate disposal of waste in an environmentally friendly way. It is more important than ever that the scientists, engineers and technologists involved in the materials cycle are qualified and experienced to make the best use of materials in terms of economics, efficiency and sustainability for the benefit of all. The objectives and activities of the Institute (see page 36) have been designed to support the wider materials, minerals and mining community, together with government and other interested parties, to achieve these ideals.

The Institute has referred to the Charity Commission's guidance on public benefit when reviewing its aims and objectives and in planning future activities. In particular, the Council considers how planned activities will contribute to the aims and objectives it has set.

Vision

Our vision is to be recognised as the global leader for professionals involved with the materials cycle.

Mission

- To promote the science, design, engineering and technology of materials, minerals and mining and their practical applications.
- To facilitate qualifications, professional recognition and development, and to deliver knowledge, information and networking services to a global membership and wider community.

Trustees' Report

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Past President's overview

Martin Cox
President
2017 – 2018

As another Presidential term concludes, it's good to see many of the systems and initiatives taking shape to take us forward as an open, diverse and relevant PEI in the 21st century.

As my term comes to an end, it's time to hand over to Serena Best CBE, our first woman IOM3 President. In doing so, it's my perception that the organisation is gaining momentum in the process of evolving towards a structure and model of operation that will be sustainable, and puts the Institute in position to increase its capability to engage in increasing depth, across a broader range of issues related to its core materials, minerals and mining life cycle subject matter both internally and externally against an increasing level of public interest and engagement. That said, there are still considerable challenges that lie ahead as we look forward to returning the membership to growth and with a view to making an appreciable impact on the ambitious targets we set ourselves at the outset of the membership growth initiative some 5 years ago.

Initiatives that were developed to initiate change, mould and adjust the organisation to position it to deliver on its objectives have been in play for some time, their effectiveness evaluated at appropriate intervals, and further changes initiated where needed. Again, it is frustrating that the final delivery of the stage 1 governance review and approval by our patron and the Privy Council has not been achieved by the year end, but the long planned-for EGM was held and the membership overwhelmingly approved the proposed changes. It is now expected that this will conclude by mid-2019.

The increase in retired members fees brought to a head both sides of the arguments faced by organisations that rely on significant voluntary input and support. In summary, the need to increase fees in order to cover costs, the major proportion of which is related to the employment of staff to support, focus and co-ordinate the delivery of voluntary effort. Not an easy debate, but I would like to thank those members who took the trouble to make their views known, for all for their efforts and support, whatever their future intentions.

That's a good point to lead me on to thank all members of staff and volunteers of IOM3. I have really enjoyed working with you and having the opportunity to travel around the country (and on a few occasions further afield), meeting up with many of you, either as renewed acquaintances or for the first time, over the last two years. Leaving the President's role, it is the level of commitment and effort that needs to be applied and maintained in order to run the organisation that stays with you, bringing it together when needed to in order to meet commitments and responsibilities, be it staff or volunteer, I thank you all for the part you play.

And finally, I could not sign off without wishing Bernie Rickinson the best for the future having taken retirement at the year-end – thanks to him and his team. The new year, 2019 brings in not just a new President, but also our new CEO, Colin Church. No doubt there will be other changes in the future as the Institute prepares to celebrate its first 150 years in the coming year, and starts work on its second.

A portrait of Serena Best, the President of IOM3 from 2019 to 2020. She has blonde hair and is wearing a white top. The background is a blurred indoor setting with warm lighting.

President's overview

Serena Best
President
2019 – 2020

It is a great honour and privilege to take on the Presidency in this 150th anniversary year and I look forward to serving the Institute and all of its members in the UK and overseas.

As we celebrate the 150th anniversary of the foundation of the Iron and Steel Institute, we have the opportunity to reflect on the impact on our lives of the many new technologies and materials that have been developed. In the last years of the 19th century members of our community contributed to significant advances including steel alloy design, the Bayer process for the production of alumina, the incandescent light bulb and the ball point pen. In the 20th and 21st centuries, however, the pace of change quickened with huge changes for society through new capabilities in transport, construction, defence, communication and healthcare. The development and use of new, high performance materials plays a pivotal role in each of these and IOM3 members are key to this, offering a wealth of knowledge and experience across the whole materials cycle.

The Institute too has undergone considerable change, through the many mergers that now shape our activity and the internationalisation of IOM3, led by Dr Bernie Rickinson until his recent retirement (after 21 years of service as CEO). Under the leadership of our new CEO, Dr Colin Church, we look to the future as the leaders in environmental safeguarding and sustainability in Materials, Minerals and Mining across the world.

As I take on the Presidency of IOM3, I am aware of the need to encourage a broad demographic distribution in our membership and I am especially keen to ensure that IOM3 membership also reflects equality and diversity appropriate for the 21st century. Harnessing the expertise and contributions of all constituencies in our community is key to our success. I acknowledge the excellent work that is done for the Institute by volunteers and the essential role played by Local Societies. I look forward to working with them and hearing their views.

The Institute holds a unique position in the UK and across the world and we are well-placed to influence government and public policy discussions on emerging topics. Through this engagement and by supporting the next generation of scientists and engineers, we can ensure that our relevance and impact are clear.

I would like to thank both Martin Cox and Mike Hicks for their excellent work and dedication, as President and Immediate Past President. I am committed to maintaining the momentum they have generated and look forward to continuing to work alongside Martin as he takes on the Chairmanship of the Managing Board.



CEO's Review

Colin Church
Chief Executive

As the new CEO of the Institute, I am delighted to be writing my first review for our Annual Report. I am deeply honoured to have been charged by the Institute's Trustees with taking IOM3 into the next phase in its long and distinguished history.

I want to start by paying tribute to the immense contribution made by my predecessor, Dr Bernie Rickinson. He has steered the Institute to where it is now – a globally respected network for everyone involved in the materials cycle. I am deeply honoured to have been charged by the Institute's Trustees with building on Dr Rickinson's work and, together with the great team here and our hundreds of dedicated volunteers, taking IOM3 into the next phase in its long and distinguished history.

2018 proved to be a year of much change for the Institute. In April came Dr Rickinson's announcement that he would be retiring from his role at the end of 2018 and the search for his successor began. The Institute moved to a second phase of its Governance Review with a reassessment of its technical communities and the announcement of the new Technology Communities Board, and an EGM was held in July to ratify various Bye-Law changes before consultation with our regulators and submission to Privy Council. Finally, December

saw Dr Rickinson's retirement amidst many tributes and best wishes and also the end of Martin Cox's term as President.

Our membership team were delighted to upgrade 250 members during the year, 162 to Fellowship (FIMMM) and 88 to Technician Member (TIMMM). We are also pleased to report 172 new professional registrants to the Science Council, Engineering Council and Society for the Environment during 2018. Overall, the Institute recorded both its highest number of new recruits and of members rewarded through the peer review process with a professional grade of membership in 2018. We are grateful to all our volunteers who give their time to help with the process of peer reviews and interviews relating to professional registration and upgrades.

Despite these achievements, the Institute recorded a disappointing drop in overall membership numbers through retirements, resignations and other exits. Addressing member retention is a high priority for us and in 2019 we will launch work to improve our understanding of our members' needs and the alignment of our benefits to those needs.

The Schools Affiliate Scheme has continued to grow steadily, ending the year on over 1200 members. Our other outreach activities had a positive impact on around 4000 young people and their teachers in 2018. The Magic of Materials Summer School has gone from strength to strength and the Engineering Extravaganza events that we run in collaboration with a group of other Professional Engineering Institutions have broadened further to now include the whole of Yorkshire.

Over the summer, the Institute underwent reviews of its licences with the Engineering Council, Science Council and Society for the Environment. Thanks to the hard work of the membership team and volunteers, we passed with flying colours and had all our licences renewed for another five years.

The Institute generates and shares a significant amount of content, which in 2018 included an excellent conference and seminar programme, one of our most successful ever. Highlights included continuation of the Materials Protecting Society series, ClayTech 2018, EuroSuperalloys jointly with the University of Oxford; the International Conference on Manufacturing of Advanced Composites (ICMAC); Timber 2018; the FAME (Flexible and Mobile Economic Minerals Processing project) closure conference; and OXI2018 – European Oxide Scale Conference. Throughout the year, we also supported the Year of Engineering, a Government campaign celebrating engineering and aimed at tackling the skills gap and received almost 180 delegates on our training courses.

Our publishing, library and enquiry services were also strong in 2018. Several IOM3 journals improved their impact factors and there were more full text downloads across the portfolio than in 2017. We also signed a new five-year contract with our academic publishing partners Taylor & Francis. The National Materials and Mining Archive (NMMA) based in Grantham grew with collections from Tata Steel, STC (many British Iron and Steel Research Association reports) and Marshalls Carbide. The Materials Information Service answered around 1400 technical queries from companies, members and the general public.

In October, IOM3 held the 2nd Russia-UK Raw Materials Dialogue alongside our partners St Petersburg Mining University, Russia, with a focus on knowledge exchange and the needs of the financial markets. The programme included panel discussions, poster sessions as well as Q&A sessions to showcase London as the global mining financial hub and facilitate interaction between mining and financial professionals. This conference series is part of a strategic partnership between IOM3 and the Russian university, which also saw the development of an agreement to start an IOM3-affiliated local society in St Petersburg.

Financially, 2018 saw a continuation of difficult trading conditions, with the shadow cast over investment decisions across the economy by Brexit affecting the Institute's income too. This resulted in a disappointing operating deficit that appeared late in the year as expenditure by others was postponed or cancelled.

Corporate aims

Our corporate aims include:

- Increase the membership and the retention of members
- Promote the importance and relevance of our subject areas and increase our influence
- Improve membership services in extent, quality and perception
- Operate at a surplus with enough reserves to meet at least one year's activities.

Our plans for 2019

2019 is an exciting year for the Institute. This year, we celebrate 150 years since the founding of our oldest constituent part, the Iron and Steel Institute in 1869. We also welcome our first IOM3 woman President, Professor Serena Best. Beyond that, our plans for the year are to:

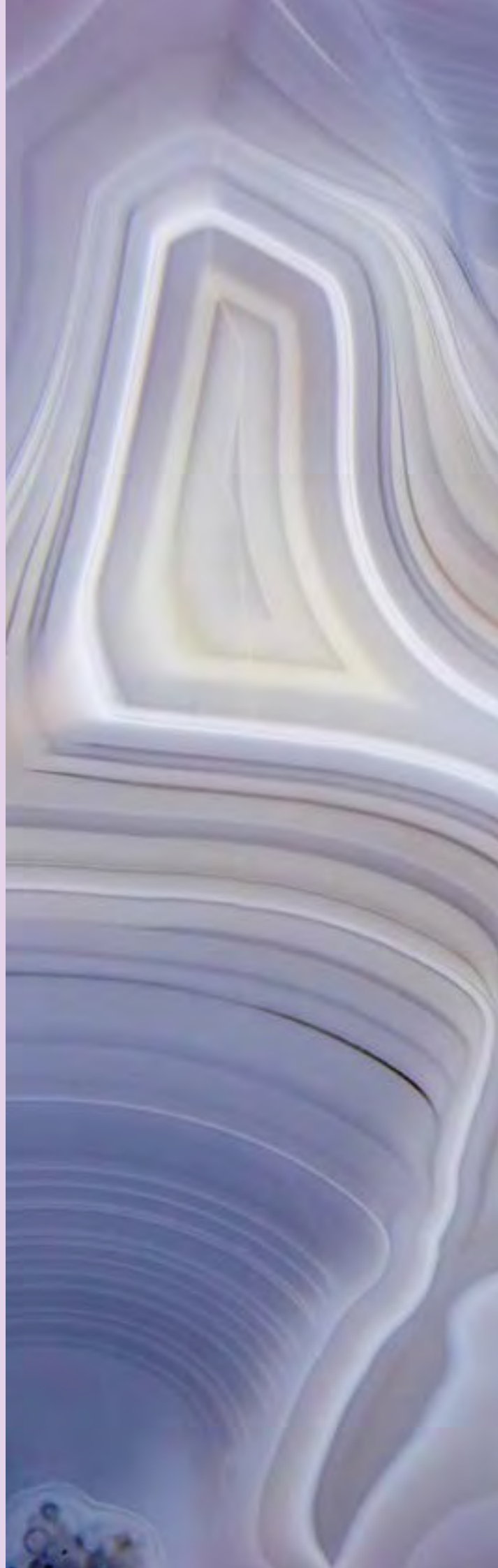
- Improve our understanding of our members' needs and the alignment of our benefits to those needs;
- Deliver a successful programme to celebrate the Institute's 150th anniversary;
- Select a new membership database solution and start its implementation as the core of a programme of digital transformation;
- Develop a new strategic plan and underpinning business plan for 2020 and beyond;
- Continue to highlight the role the people who manage materials, minerals and mining have at the heart of tackling societal challenges; and
- Implement the changes to governance to reflect best practice and enhance interdisciplinary working across the Institute.

In 2018, the Institute continued to develop its services to members and the activities of its technical, regional and member communities spread across the global materials, minerals and mining sectors.

The year delivered a successful programme of conferences across a broad spectrum of technical sectors and member recruitment and upgrades were at an all time high. The latter part of the year was focused on planning for the 150th anniversary celebrations in 2019 and the handover to our new CEO, Dr Colin Church.

Plans for Governance changes continued to be high on the IOM3 agenda in 2018 and an EGM was held in July to approve additional modifications to our Bye-Laws and Regulations. Reorganisation of our technical community structure also took place and these changes will be implemented during 2019.

Highlights of 2018 from all IOM3 activities are described in the following pages. IOM3 is grateful to the large body of volunteers contributing at all levels and across all sectors, both in the UK and overseas. As previously, we are keen to encourage more younger members and more women members to get involved in volunteer activities. Information about the many ways in which members can contribute to IOM3 as volunteers is available on the IOM3 website. The Trustees would also like to acknowledge the hard work and dedication of the team at IOM3.





Highlights of 2018

Member development continued to make significant progress during 2018, with record numbers of members recruited and upgraded to professional qualifications.

The major achievement of the Membership team during the year was the successful outcome to the full licence reviews that were conducted by the Engineering Council, Science Council and Society for the Environment. All three reviews resulted in the Institute's various licences all being renewed for a further five years. In addition the Institute was complimented as demonstrating best practice in the areas of promotion of registration, the training of its volunteers and continuing professional development record sampling and assessment procedures.

Targets for the Institute's major initiative to grow and develop its membership were met during 2018 and in some cases exceeded. A total of 1848 new members were recruited during the year with a further 600 signing up as registered users of our website. The number of women recruited was an all time high, such that women now make up 19% of the total membership; one of the highest in the professional engineering community. There is clearly more to do in this area, but this is an encouraging development.

Members achieving professional registration as an engineer, environmentalist or scientist totalled 167 during

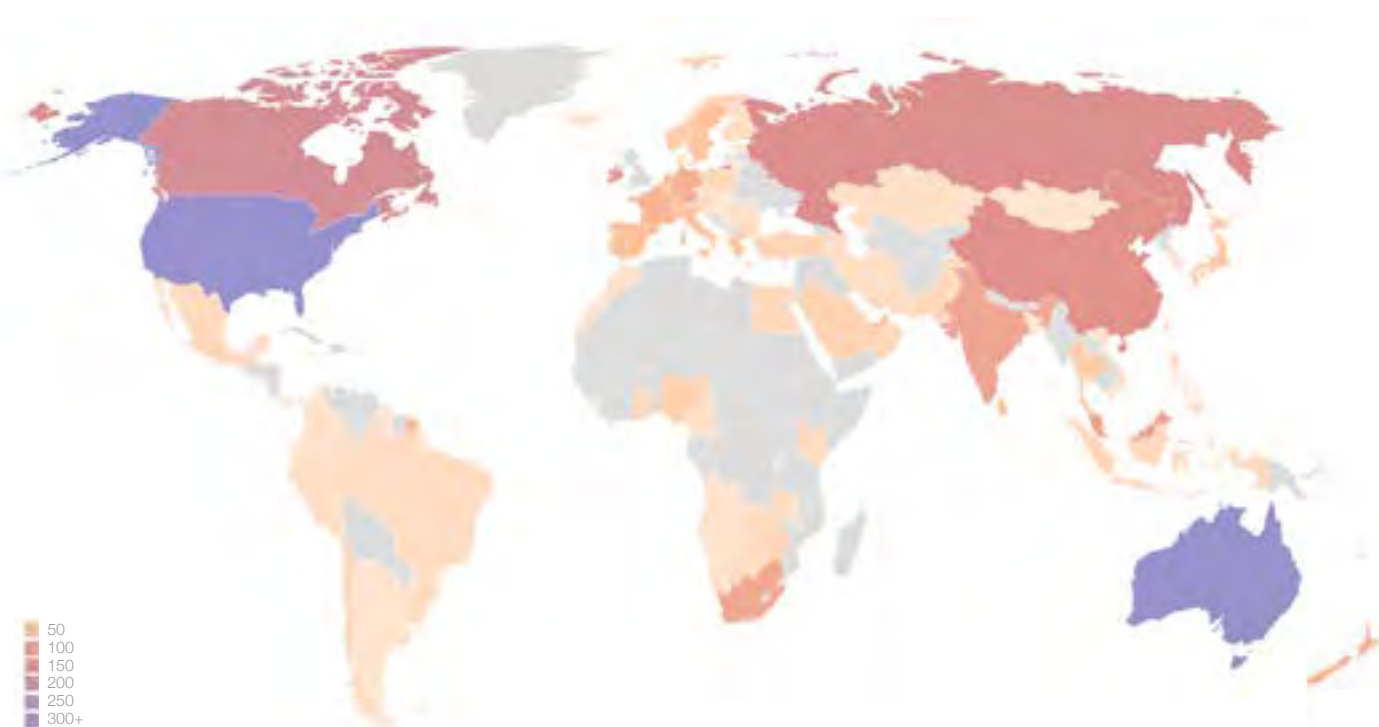
the year, with 138 to the Engineering Council register. The Institute exceeded its target of 160 for the number of new Fellows elected with 163 at year end. This continued growth is due largely to the success of the mentoring workshops that were hosted during the year and the support of existing Fellows who have engaged in the nomination process. This latter route saw 56 new Fellows elected from 96 nominations.

The Women into Fellowship programme launched during the year made an immediate and significant impact. The proportion of women elected to Fellowship in the last quarter of 2018 was over 30%, compared to the average of 8% recorded in the previous year.

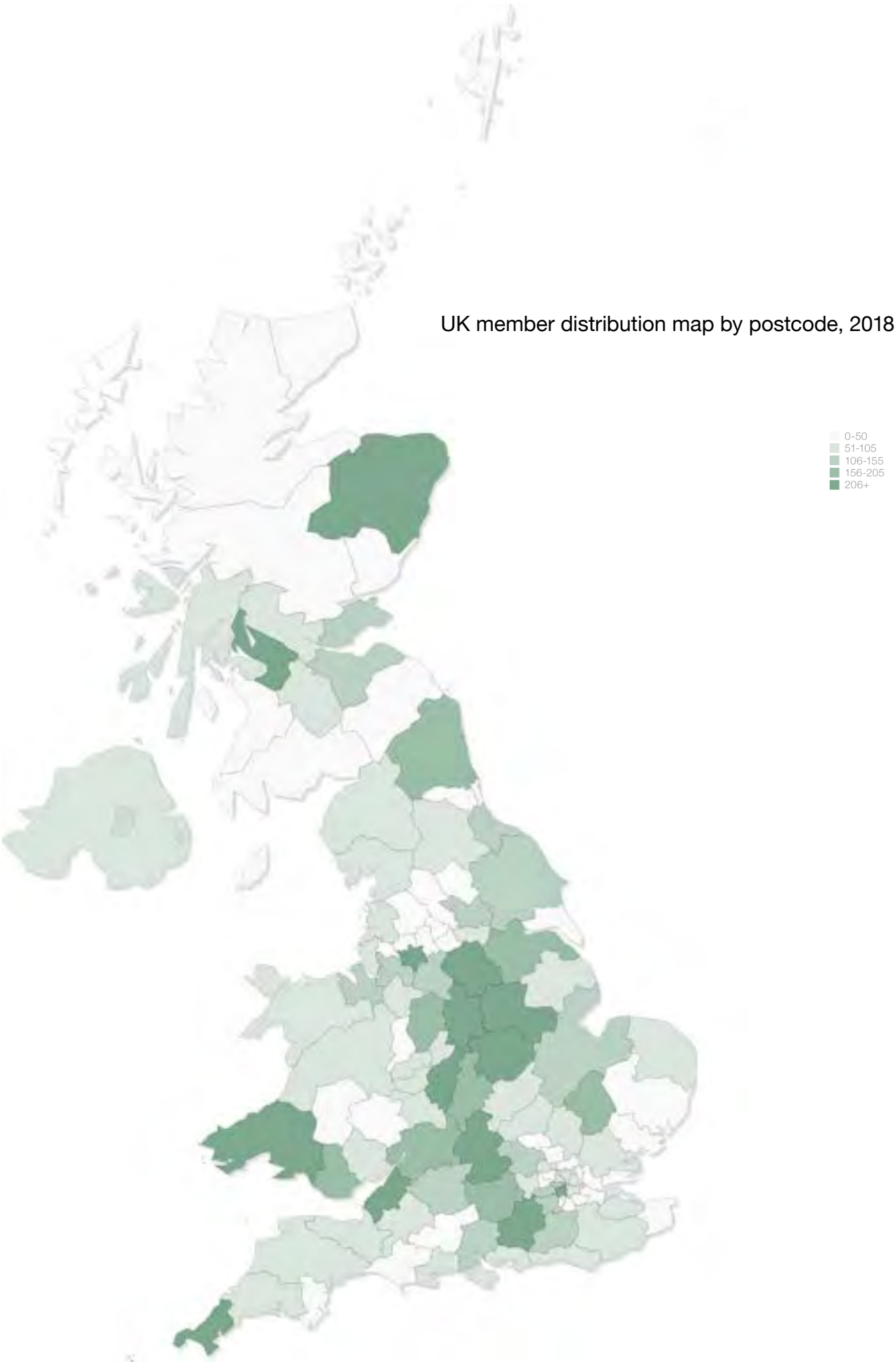
The Institute's commitment to growing membership at all levels was underlined with the recruitment of 88 new technician members during the year, an all time record by a significant margin since the launch of the membership growth initiative in 2014.

The Continuing Professional Development (CPD) records of 320 registrants were sampled and assessed during the year, a number which exceeded the regulator requirements.

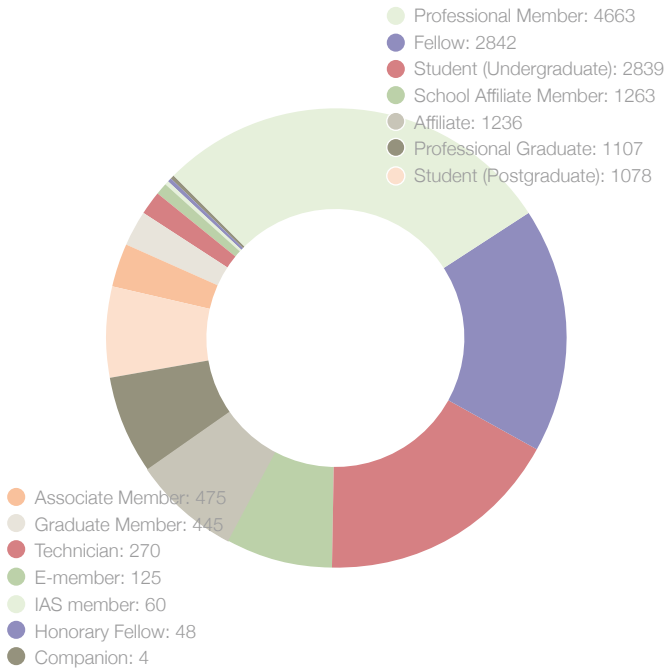
Overseas member distribution map, 2018



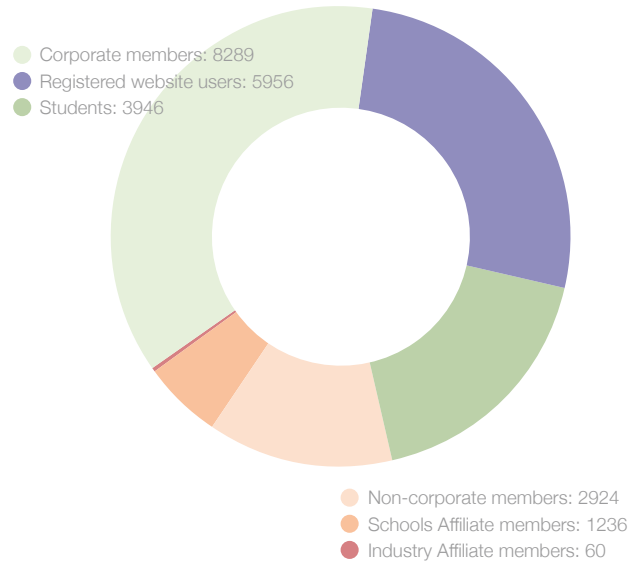
UK member distribution map by postcode, 2018



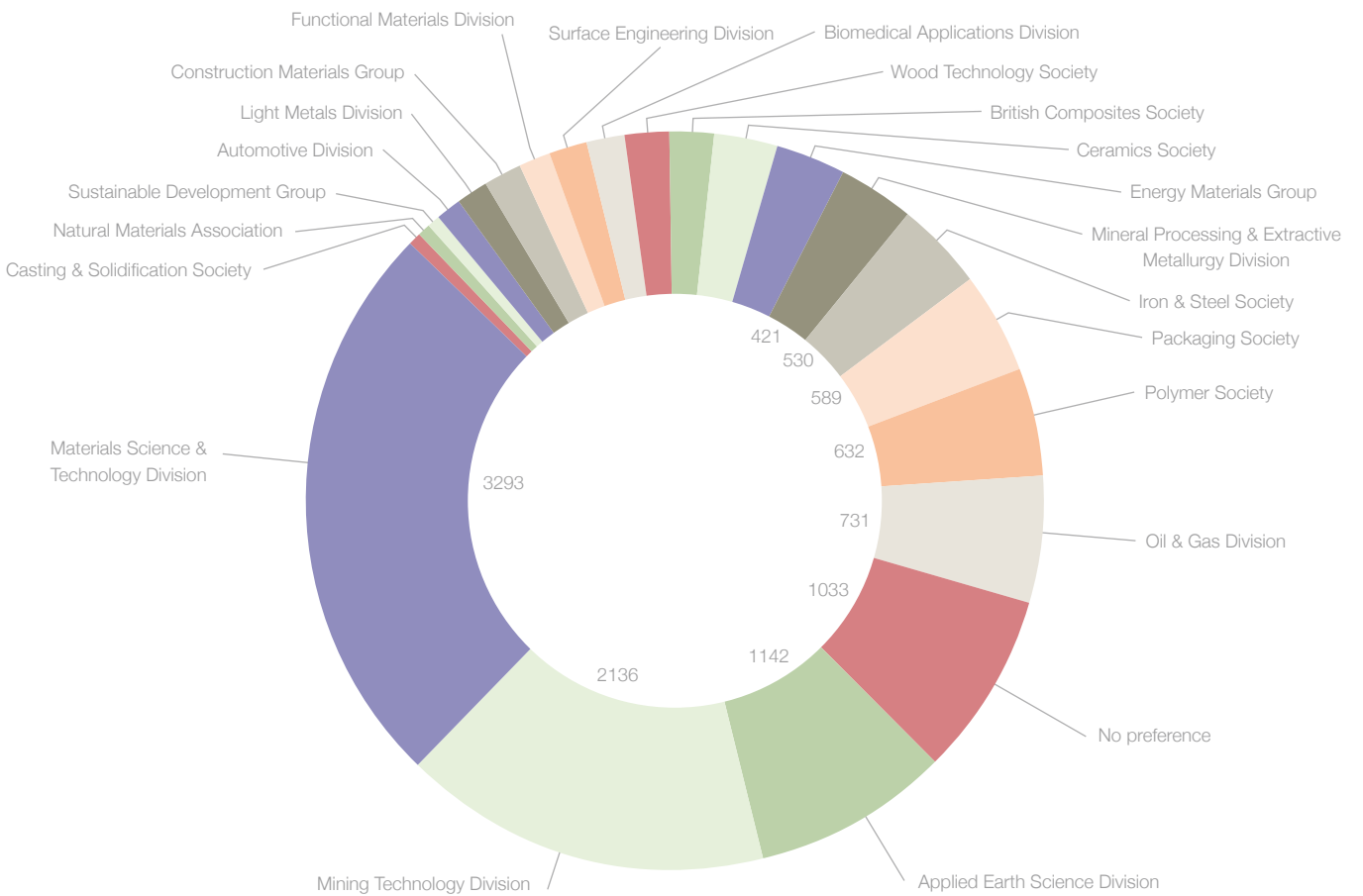
IOM3 Members by Grade, 2018



IOM3 Members by Status, 2018



Members by Preferred Technical Division, 2018



The **Younger Members' Committee (YMC)** represents the interests of IOM3 members normally under 35 and is involved in organising various events throughout the year to engage with young people



Young Materials scientists support MaDE at the 2018 New Designers Show.

Sam Cruchley took over as the Chair of the Younger Members' Committee (YMC) in February, from Kate Thornton who was elected as a Vice-President of IOM3. The Institute is endeavouring to ensure that there is a Younger Member representative on all boards to enable this important sector of our membership to play an active part in governance. So far 19 of our boards have Younger Member representation.

YMC Art Lecture

The Younger Members' Committee Art Lecture took place at IOM3 headquarters in London in March, as part of the YMC lecture series. Artist Emma Finch gave the keynote lecture on *Ceramics: A sustainable material within an art practice*. Members of the YMC, along with both engineering and arts students, attended the evening.

Emma Finch also commissioned the three-part YMC 50th anniversary ceramic art piece that is now installed in the heritage staircase at IOM3 headquarters in London, in the IOM3 Grantham Centre and the IOM3 Office in Stoke.

Young materials scientists support MaDE at New Designers Show

Two members of the Younger Members' Committee (YMC), joined up with six MSc students from University College London (UCL) for an innovative initiative, set up by the Materials and Design Exchange (MaDE), at the New Designers Show in London in July. MaDE is a partnership between various organisations, including IOM3, Innovate UK and the Royal College of Art, which aims to demonstrate the value of interaction between the materials and design communities.

The two teams of students from UCL, led by a member of the YMC, were tasked with visiting ten young designers at the New Designers Show, with a view to understanding the design, what materials and manufacturing process the young designers envisaged using for their product and to offer advice if applicable. With the support of a number of MaDE mentors, the teams put together a 30 minute presentation, which was followed by a panel discussion allowing the young designers to ask more detailed and specific questions.



Young Persons' Lecture Competition UK finalists 2018
at the Armourers' Hall, London

Young Persons' World Lecture Competition (YPWLC)

The Fairview Course Arena in Port Elizabeth, South Africa, hosted the 14th Young Persons' World Lecture Competition (YPWLC) in October. Kyle Saltmarsh from Australia was awarded first place for his lecture on *Acoustic-based condition monitoring in the resource industry*. Second place went to Hong Kong's Lin Guo with her lecture *Combating cancers with a new superweapon*. Followed closely in third place by Andrew Ng Kay Lup from Malaysia, with his lecture on *Bio-crude oil from lignocellulosic biomass: a zero-to-hero energy scenario*.

The eight finalists, all winners of their national finals, were treated to an all expenses paid trip sponsored by Companhia Brasileira de Metalurgia e Mineração (CBMM) to spend the week in Port Elizabeth. During the week they were able to participate in a number of activities and were shown around some of the highlights of the area, including a safari tour at the Pumba Private Game Reserve, a Township Tour where finalists and sponsors visited a local school, and took part in an interactive drumming and dancing session. The programme also included a series of industrial and academic visits to S&N Rubber, the Volkswagen South Africa Auto Pavilion museum and factory and Coega Industrial Development Zone. IOM3 is grateful to the YPWLC major sponsor, CBMM, for its generous support, and the IOM3 South Africa branch members for their help in organising the event.

Young Persons' Lecture Competition UK Final

There was a record turnout at the UK final of the Young Persons' Lecture Competition (YPLC) at the Armourers and Brasiers' Hall in London on 25 April. The YPLC judging panel, chaired by Dr Phil Bischler CEng CSci FIMMM, was impressed by the high standard of stimulating talks by the six finalists, with lecture topics ranging from polymer power, solar cells, and kitchen knives, to magma and nanotechnology.

First prize went to Sam Lawton from the University of Warwick for his lecture *Polymer Power: From Light to Current*. Lawton was awarded £750 plus the Armourers and Brasiers' Company Medal. Sam went on to represent the UK at the IOM3 World Lecture Competition final in Port Elizabeth, South Africa, in October 2018. Second prize was awarded to University of Oxford student, Gabrielle Bourret-Sicotte and Chloe Fisher, from the University of Leeds, took home third prize.



The Materials Information Service (MIS) continues to provide technical help and information to personal members, corporate members and the general public

2018 saw a large number of enquiries from a more global audience via the IOM3 website. The majority of these enquiries were of a highly technical and specific nature and the Information Services Team continued to provide a high quality service and response which exceeded the expectation of most enquirers.

The MIS Team maintained their support of the technical communities within IOM3, particularly identifying areas of synergy between various groups. The year saw a change to the new Technology Communities Board as the over-arching body and the MIS team helped to smooth through these changes. The 'Ideas Hopper' online tool provided IOM3 with a source where societal issues that have a materials background are collected and disseminated within our technical communities for further development. Over 900 materials related stories were recorded in 2018.

The Titanium Information Group (TIG) changed to reflect the needs of users and moved from a standalone service to become a network under the Light Metals Division of IOM3 in the early part of 2019. Similarly, the European Association for Brazing and Soldering (EABS) was superseded by the IOM3 Brazing and Soldering Group, part of the Surface Engineering Division of IOM3.

The National Materials and Mining Archive (NMMA) based in Grantham continued to grow with the acquisition of further reports and publications from Tata Steel (STC collection of BISRA Reports) and Marshalls Carbide.

The IMIMAGE (Information on Mining, Metallurgy and Geological Exploration) bibliographic database is produced and managed by Information Services staff and is highly appreciated by members, subscribers and researchers worldwide. A slight decline in subscriptions was more than matched by the high level of interest and support from members.

The library and publications teams have been working since 2017 on a project to digitise the Institute's library content and make this available online in an easily accessible and searchable electronic format. The first 1500 documents to be scanned and uploaded included the *Journal of the Iron and Steel Institute 1869–1875* and *Transactions of the Institution of Mining and Metallurgy 1990–1999* followed by a range of publications in the fields of ceramics, plastics, wood and other subject areas. The new IOM3 digital library went live in February 2019, with content relating to metals, polymers, minerals and mining and a particular focus on the 150th anniversary of the Institute.



Bill Coales (centre) at the National Materials and Mining Archive with Stuart Preston, Head of Knowledge Exchange and Hilda Kaune, Senior Information Advisor.

The MIS team led IOM3 participation in an OPENCORR (High Temperature Corrosion Characterisation – Open Test Beds) consortium with several European partners bidding for Horizon 2020 project funding. Although this got through stage one of the evaluation process we were unsuccessful in obtaining funding.

Signature Materials had a lean year, in part due to customers taking the process in house (a sign of success and always the intention) but also to a perception that the 'job was done'. This was due to the Scrap Metal Dealers Act of 2013 which metal thieves were finding ways around in 2018, and moving from opportunistic thefts to large scale gang related crimes. There has been a significant increase in the theft of catalytic converters, an area where Signature Materials has been trialed successfully in the past. We are well placed to respond as metal prices remain high and thieves active.

Major objectives for 2019 are to continue to provide a high quality service to members and the general public, increase membership of the Industry Affiliate Scheme, grow the library digitisation project and improve opportunities arising from technical enquiries.

Journals

A new five-year contract with Taylor & Francis (T&F) was signed at the end of 2018. During 2019, T&F and IOM3 will be working together to develop governance guidelines and key performance indicators for the journals to maintain quality, improve performance and sustainably grow revenue. During 2018 several IOM3 journals gained stronger impact factors and numbers of full text downloads grew compared to 2017.

Magazines

2018 was a year of transformation for *Materials World* with respect to all elements of the publication. Firstly, the redesign launched in January was a great success. The clean, contemporary look and feel, with eye-catching coverlines, has helped to reinforce *Materials World* as a member magazine, setting it apart from journals and other publications in the field, while the news section and back cover provide more potential advertising space. A concerted effort was made to answer reader requests for a higher degree of technical information in the features section, while retaining popular elements of the content. The team delivered a balance of content across the divisions and societies, with more input from younger members and encouraging greater member representation, specifically targeting underrepresented Institute groups. The year saw reports on several major events - The Russia-UK Dialogue, retirement of both CEO and President, and subsequent new appointments. Meanwhile, the editorial team itself underwent a transformation with the appointment of a new Editor in August and a completely new team is in place as of March 2019. Through all of this, the team delivered high-quality, informative and entertaining reading for members.

2019 will see further growth to strengthen the value of *Materials World*, including:

- a commitment to sustainability realised through switching to recycled paper and a recyclable plastic wrapper
- digitisation of the news section to provide responsive, daily content for members
- improvements in the quality and range of CPD content
- production of a special issue in May 2019 to celebrate the Institute, its predecessors and its current technical communities
- engagement with more younger members.

Commercial

The generation of commercial revenue during 2018 was challenging. *Materials World* saw a slight decline in the amount of corporate advertising placed in the publication. However, on a positive note, more recruitment advertisements were placed during 2018 than in the previous year. The sales team is actively working to promote the benefits of webinars as a promotional opportunity and have received positive feedback. The team is also working to identify additional opportunities that can be offered to companies looking to reach IOM3 members and the wider communities engaged through our social media platforms.

A highlight of the 2018 conference programme was the annual ClayTech UK 2018 conference which attracted its highest number of sponsors and exhibitors. The events organising committee is working with IOM3 staff to continue to develop and grow the event in 2019.

The sales team was successful in attracting a number of partners to support the Institute's 150th anniversary celebrations and in 2019 is working on securing sponsorship for a number of high profile events towards the end of the year and in 2020.

Training

The IOM3 Training Academy supported the training needs of Materials Cycle practitioners through the year with its suite of courses, which currently major in packaging, wood, clay and management. Most lead to a nationally recognised qualification at levels 2 to 5 through the PIABC awarding body. A total of 179 members undertook courses offered by the Institute during the year, with 92 studying packaging technology.

The Institute is currently in the process of working up interventions to expand its technical outreach with courses leading to qualifications in the polymer and non-ferrous metals areas. It also has plans to engage its technical communities with an open invitation to develop short courses for IOM3 members in their specific disciplines.

PIABC

PIABC Limited is a specialist awarding body administered by IOM3, with a suite of regulated and nationally recognised qualifications in the materials sector. During 2018, PIABC continued to develop and evolve qualifications to meet the needs of the materials sector, including the development of new regulated qualifications in packaging (level 2) and polymer operations (level 2). PIABC also successfully completed its annual regulatory activities for each of its three Regulators (CCEA Regulation, Ofqual and SQA Accreditation). In 2019 PIABC plans to review its wood and packaging qualifications to ensure that they are current and reflect what employers consider is important.

The Institute has 22 technical divisions, societies, groups and associations that act as special interest groups, forming a focus for activities within specific sectors

Packaging Society transformation

The Packaging Society (TPS) went through a time of transition and was reorganised under the chairmanship of Ian Davies with the aim of broadening the outreach of the Society with new partnerships and activities.

As part of its new strategy, TPS hosted a mini conference in May 2018 on natural packaging solutions. 'Cartonboard and Cellulose Film – New Technologies for Packaging' brought together designers and industry experts from across the UK to discuss emerging market trends and cutting-edge material technologies in the sector. The event included a lively forum debate on applications, performance and suitability for recycling, composting and sustainability.

Following the media attention on plastics through programmes such as Blue Planet II, TPS published a statement identifying five issues that should be addressed by UK Government, retailers, consumers and the packaging industry: plastic waste management, plastic material options, plastic material substitution options, market alignment and economics.

Promotion

A number of the technical divisions took part in major industry exhibitions during 2018 to promote IOM3 activities and services and reach out to members and non-members in specific sectors. The Packaging Society was involved in the Packaging Clinics run as part of their presence at the Packaging Innovations events in London and Birmingham. The British Composites Society attended the Advanced Engineering Event at the NEC in November together with representatives of IOM3 Membership and Information Services staff.

IOM3 also had a presence at Argus Metals Week and the Materials Research Exchange Investor Showcase in March, the BMRA Metals Recycling Event in July, and at EuroPM in Bilbao in October.





Tom Heap, from BBC's Country file and Radio 4's Costing the Earth, gave the keynote address at the Materials Protecting the Environment Seminar.

Appointments in technical communities

During the year, there were new appointments to chairs of technical divisions, who are also IOM3 Trustees. Dr Simon Butler, Head of the Advanced Metal Casting Centre and Advanced Metal Processing Centre at the Brunel Centre for Advanced Solidification Technology, Brunel University London, was appointed the new Chair of the Casting and Solidification Society.

Dr Graham Ormondroyd, Head of Materials Research at the BioComposites Centre, Bangor University, took over as Chair of the Wood Technology Society (WTS). Jody Hayes of Mercedes AMG High Performance Powertrains became the Chair of the Automotive Applications Division and Ian Davies was appointed Chair of the Packaging Society.

In 2018, IOM3 Trustees approved the creation of a new Technology Communities Board (TCB) in place of the existing Industry & Technology Policy Board, made up of seven Strategic Advisors covering the four aspects of the materials cycle: life cycle, extractives, materials and applications. The TCB's role will be to provide a catalyst for multidisciplinary activity between technical groups of IOM3. The search for candidates for the new Strategic Advisors began towards the end of 2018 and their appointments were announced in March 2019.

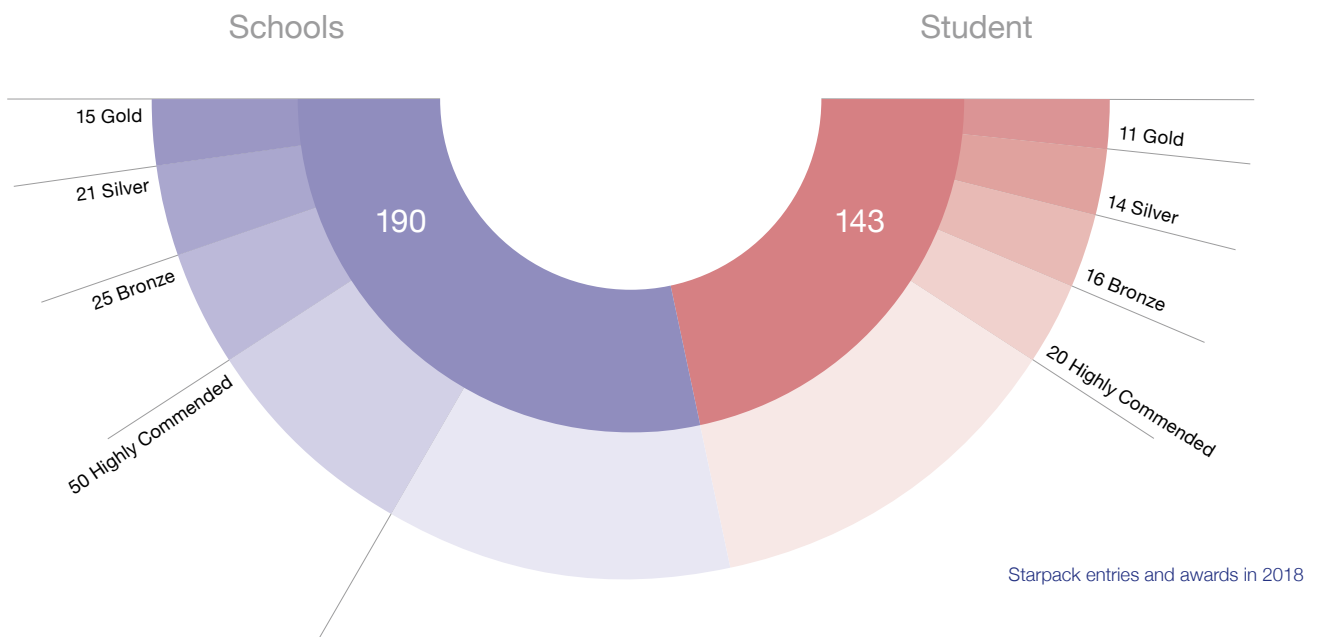
Materials Protecting Society Seminar Series

The Materials Protecting Society Series organised by IOM3 and endorsed by the IOM3 Sustainable Development Group continued with its series of seminar events during the year. Materials Protecting the Environment in February explored the role of science and technology in preserving and improving the natural environment with presentations focussed on ocean health, waste, and practical solutions in the UK and the developing world. The third event in the series, on the theme of Materials Protecting People, took place on 29 November looking at the need for society to respond to modern-day challenges such as terrorism, natural disasters, climate change, and an ageing population, emphasising the important role of materials in developing solutions.

Surface Engineering initiatives

The Surface Engineering Division (SED) had a busy year as an integral part of the Surface Engineering Leadership Forum (SELF), which was formed in 2018. The chair of SED, Professor David Rickerby saw SELF as key to growing the fortunes of the UK surface engineering community, and wanted to make sure that IOM3, through SED, was at the heart of this multi-partner initiative. SED also oversaw the plans for the relaunch of the UK Tribology network, a collaborative initiative of the Institution of Mechanical Engineers (IMechE), The Institution of Engineering and Technology (IET), IOM3 and the Institute of Physics (IOP), early in 2019, via the first national event to be held at NPL entitled 'Future cities and mobility – the challenges for tribology'

The **Starpack Industry Awards** scheme recognises innovation in packaging design and technology, with its Schools and Student awards intended to encourage young people to take up careers in consumer packaging design



A ceremony was held at IOM3 in London, on 27 June to celebrate the success of the entrants of the Starpack Student and Schools Awards.

The Starpack Student and Schools Awards scheme organised by IOM3 challenges UK pupils from a range of ages, schools and courses to submit solutions to problems set by brand-leading companies, design agencies, and manufacturers. The awards had a record number of entries in 2018.

The Starpack Awards are judged by an independent panel of packaging experts. The judges came together at IOM3 headquarters in London in May and were particularly impressed with the bold interpretations of the briefs by the young people who entered this year. Of the 190 packs submitted for the Schools Awards, the judges awarded 50 Highly Commended, 25 Bronze, 21 Silver and 15 Gold awards. In the Student Starpack Awards 2018, there were eight categories and 143 packs submitted for judging. The judges awarded 20 Highly Commended, 16 Bronze, 14 Silver and 11 Gold awards.

The Starpack Packaging Industry Innovation Awards underwent a change of scheduling so that the next round of awards will take place in 2019. The Awards Dinner at which the 2017 awards were presented took place at IOM3 London Headquarters at the end of February 2018 and was a lively celebration of industry professionals, packaging manufacturers, designers, and brand owners, who continue to push the limits of technical expertise and innovation in packaging. The 2019 Industry Awards will be presented in June.



Delegates at the 2nd Russia-UK Raw Materials Dialogue held on 24 October in London.

Education

The Schools Affiliate Scheme has continued to grow steadily, ending 2018 on over 1200 members. The Institute's other outreach activities had a positive impact on around 4000 young people and their teachers in 2018. The 'Magic of Materials' Summer School has gone from strength to strength and the reach of the Engineering Extravaganza events run in collaboration with a group of other professional engineering institutions has broadened further to now include South, North, East and West Yorkshire. During the coming year our focus will be on utilising our network of volunteers so that we can reach even more young people.

Accreditation

In 2018 the Accreditation team completed ten accreditation visits, two of which were first time visits, and others included new programmes or programmes not previously considered. Two BSc programmes, 14 BEng programmes, 19 MEng programmes, three MSc programmes, one MRes Programme, one ME programme, one PhD and one EngD programme have successfully been granted accreditation along with three graduate/initial professional development programmes. In addition to this the team met with a number of organisations looking to undertake accreditation in the future. 2019 is looking to be a bumper year for accreditation, with 17 visits booked so far, two of which are with organisations that have not previously held IOM3 accreditation.

WorldStar

Over 500 people attended the WorldStar Awards Presentations & Gala Dinner on Australia's Gold Coast in May. WorldStar is the most important global packaging competition, organised by IOM3 on behalf of WPO (World Packaging Organization). During the ceremony 65 winners from a total of 200 awarded packages were present, representing 22 countries. Japan collected the most awards during the evening (12), closely followed by China (11).

Conferences

In 2018 the conferences and events team ran 16 events, attracting in excess of 1400 delegates. The year got off to a strong start with the second in the series of Materials Protecting Society seminars. The one-day event in February on Materials Protecting the Environment included keynote speakers, session presentations and debate on climate change, ocean health, circular economy and air quality. This was followed by another seminar, Materials Protecting People, in November.

The first in the Wood Technology Society's series of annual Timber conferences presented the latest trends and emerging research in timber, wood science and related fields. IOM3 hosted EuroSuperalloys with the University of Oxford (269 delegates) and ICMAC 2018, the international conference on manufacturing of advanced composites, was held in Nottingham.

The 2nd Russian-UK Raw Materials Dialogue conference on Investing in Mining and Mineral Extraction Operations took place in London in October with over 250 attendees, including a large delegation from Russia. The annual ClayTech conference held in Newark in November continues to grow, with a record number of exhibitors in 2018. A raft of well-attended events finished up the year – Residuals in Steel, Particulate Engineering for Industry, the FAME (Flexible and Mobile Economic Minerals Processing project) closure conference, and OXI2018 – European Oxide Scale Conference.

Highlights of 2019 include the wide-ranging programme of events to celebrate the Institute's 150th anniversary year, the International Rubber Conference IRC 2019 in September and the next in the ever popular Adhesion conference series.

IOM3 continues to maintain and expand its international links, with overseas branches, sister institutions and new collaborations

2nd Russia-UK Materials Dialogue

On 24 October 2018, IOM3 held the 2nd Russia-UK Raw Materials Dialogue alongside IOM3 partner St Petersburg Mining University, Russia, with a focus on knowledge exchange and the needs of the financial markets. The programme included panel discussions and poster sessions as well as a question and answer session to showcase London as the global mining financial hub, and encourage discussions between mining and financial professionals. The Russia-UK conference was set up as part of a strategic partnership in 2015 between IOM3 and the Russian university to establish a relationship between the two countries, which would be reinforced by a series of annual events. Topics at the conference included business climate in the raw materials sector, trends in the mining industry, international reporting codes and educating engineers in the financial appraisals of mineral resources. During the event in October, an agreement was signed between IOM3 CEO Bernie Rickinson and the Rector of the St Petersburg Mining University, Vladimir Litvinenko, to start a Local Society in St Petersburg.

IOM3 welcomes Latin America delegates

On 17 October, IOM3 President Martin Cox welcomed Argentinian, Bolivian and Chilean ministers and embassy staff to IOM3 headquarters in London as part of a visit co-ordinated by the Trade and Investment Department of the British Embassy in Buenos Aires, Argentina. The 14-member strong delegation were introduced to the Institute, Professional Membership, Technical Divisions and Member Benefits, and had the opportunity to see how this could be applied to support the development of their mining industries as they are expanded to support the future global demand for the raw materials they will provide.



Brazil Young Persons' Lecture Competition national final winners, (right to left) Fernanda Ribeiro de Freitas, Matheus Santos and Fransisco Nogueira Saldanha Franco.

Attending FEMS Junior EUROMAT

IOM3 is a member organisation of FEMS, the Federation of European Materials Societies which has 23 member societies across Europe. The FEMS Junior EUROMAT held in Budapest, Hungary, in July was attended by IOM3 Vice-President Kate Thornton as an opportunity to network, present and see cutting edge research from scientists and engineers. The Future European Materials programme workshop looked at some of the most prominent concerns arising globally in the next ten years and what materials scientists can do. A highlight of the conference was the FEMS European Masters Thesis Competition which gave an insight into the diverse range of interdisciplinary topics occurring in the FEMS community.

Young Persons' Lecture Competition in Russia

Dr Bernie Rickinson, IOM3 Chief Executive, visited St Petersburg, Russia, in May to chair the Russia Young Persons' Lecture Competition final. Six individuals were selected to deliver their presentations to a judging panel at Saint-Petersburg Mining University. 2018 was the second year students and young professionals from Russia have taken part in the event. The winner of the national competition was Alexandra Kuznetsova who discussed how a flooding process administered to low permeable clay reservoirs using a patented surfactant composition could increase oil recovery. Alexandra joined the other national winners in Port Elizabeth, South Africa, for the Young Persons' World Lecture Competition Final in October.

Brazil Young Persons' Lecture Competition Final

Professor Serena Best, then IOM3 Vice-President, travelled to Brazil in May and chaired the judging panel of the Brazilian National Young Persons' Lecture Competition final. The event, organised by Companhia Brasileira de Metalurgia e Mineração (CBMM), saw ten finalists from six universities compete for a chance to represent Brazil at the Young Persons' World Lecture Competition. The judges awarded first place to Matheus Santos of Universidade Federal de São Carlos (UFSCar) for his presentation *Insights on the optimisation of the steel ladle process from a refractory perspective*. Following the competition, finalists, judges and staff were given a tour of CBMM's niobium mine near the city of Araxá.

The IOM3 Women In Materials group organises networking events for women in different parts of the UK and develops mechanisms to support women in their careers in the materials industries

2018 was another successful year for the Women in Materials (WIM) group. A seminar on career development and mentoring was held at Rolls-Royce at Filton in April. Over 40 people attended and there were contributions from women working at Cogent Steel, Rolls-Royce and Bath University.

The WIM Committee voted in a new chair, Margaret Wegrzyn from Zotefoams to take over from Jessica Middlemiss of Dyson. The group also welcomed new members: Judith Driscoll of the University of Cambridge, Fiona Robinson of Tata Steel, and student member Abigael Bambgoye of Imperial College, London.

Women into Fellowship

As part of its ongoing Membership Growth Initiative, the Institute announced the launch of its Women into Fellowship scheme. IOM3 is encouraging appropriately experienced women within the materials, minerals and mining communities to apply for the IOM3 Fellowship grade.

International Day of Women and Girls in Science

On 11 February 2018, the global scientific community and the Institute celebrated the UNESCO International Day of Women and Girls in Science.

IOM3 Women In Materials committee members, along with those from industry and academia, took to Twitter using the hashtags #Iamamaterialscientist and #womeninSTEM to show their support of full and equal access to, and participation in, science for females. The day highlighted the achievements of women in science throughout history, with a huge gallery of profiles shared and liked across the platform.

International Women in Engineering Day activities in Bristol, London, and Rotherham

In 2018, WIM organised three events around the UK to highlight female contributions in the engineering world to the general public, in London, Bristol, and Rotherham. The event in London was held at The Science Museum, where a scavenger hunt quiz was given out to find exhibits in the Museum concerning female scientists and engineers. The Bristol event was held at 'We The Curious' where exhibits related to contributions by women scientists and engineers were signposted. The WIM group also took over the Live Lab for a range of demonstrations and hands-on experiments related to materials and recycling. The event in Rotherham at Magna Science Adventure Centre highlighted the role of 'Women of Steel', gave visitors a chance to look at an IOM3 Materials Discovery Box and also go on a tour of Magna guided by one of the former steelworkers.

Proportion of women members by grade



Communications

Within the Communications team, a significant part of the latter half of 2018 was devoted to planning for the 2019 celebrations of the anniversary of the founding of the earliest predecessor of IOM3, the Iron and Steel Institute, in 1869. A 150th anniversary brand was developed by the design team together with accompanying commemorative artworks and memorabilia to mark this special year in the history of the Institute. A microsite was set up to be the focus of information about the anniversary year and a dedicated member of the conferences team was assigned to co-ordinate the year's activities, with support from teams across all IOM3 departments. The anniversary year launched with great success on Inauguration Day, 25 February 2019, exactly 150 years to the day since the first official meeting of the Iron and Steel Institute.

Our social media activity continues to broaden its reach with Twitter followers now at 7187, an increase of over 1800. There has been a noticeable increase in social media activity generated at IOM3 events and we are looking to build on this with an enhanced social media approach in 2019.

Our website views in 2018 were mostly level with 2017 but we are aware that more users are accessing our website on mobile devices, which will be taken into account in our future website development plans. Our communications team was involved in the set up of the 21st Century PEI website www.21stcenturypei.org which aims to bring together information and activities from a number of institutions as an example of the benefits that can be derived from collaboration across different engineering sectors.

Data security and digital transformation

The new General Data Protection Regulation became law in the UK on 25 May 2018 and the first few months of the year were spent in ensuring that IOM3 would be compliant, which included continuing team and volunteer training, documentation and review of data processing activities and putting new procedures in place where needed. Ensuring compliance with data protection law is a continuing activity to ensure that laws are adhered to when new activities are developed or existing ones are reviewed.

Data security aspects of Institute activity are also being addressed on a continuous basis, with system improvements, team training and the development of a disaster recovery plan being priorities during the year. New accounting software was implemented at the end of 2018, and we are looking to migrate the bulk of our activity to cloud based systems during 2019.

The coming year will also see the start of a major digital transformation project for the Institute to replace our legacy CRM system and related software with a modern system that will integrate our activities, streamline our processes and allow for an improved user experience both for members and for the IOM3 team.

Venue hire

The London office at 297 Euston Road continued to see a significant increase in the number of new external clients hiring meeting room space for conferences, workshops, meetings and events, as did the Boilerhouse in Grantham. The Members' business area on the 4th floor at 297 Euston Road has been in regular use. Feedback shows that members value this benefit as the London office is well situated with excellent public transport links. The Stoke-on-Trent office is available to hire for meetings and events, and external clients are beginning to utilise the meeting space, with positive feedback. IOM3 members are entitled to free use of the Members' Business Areas at all three IOM3 offices and receive discounted rates on room hire fees.

The IOM3 team

Following CEO Dr Bernie Rickinson's announcement of his intention to retire at the end of 2018, the year saw a small panel of Trustees and Directors employing the use of an executive search company with the support of our internal HR function to source a new Chief Executive. Dr Colin Church joined IOM3 on 1 November and took up the position of Chief Executive on 22 November 2018. Dr Rickinson remained as a consultant to support the Institute in its activities for Innovate UK until March 2019.

With growth of venue hire at 297 and a heavier conference programme for 2019 and 2020, the headcount in each of these departments increased by one during the second half of 2018 and the teams are working well with the improved capability. The magazine team underwent restructuring during 2018 with a view to supporting more online content during 2019 and beyond.

During the second half of 2018, people across several departments were involved in the planning of the Institute's 150th anniversary year in 2019. The successful delivery of the 150th anniversary programme will be a major focus for the coming year. IOM3 will also be looking at its activities and how these can be resourced and delivered to a higher standard and upskilling the current workforce with professional development.

An aerial photograph of a river delta, showing a complex network of channels and distributaries. A prominent, wide channel of blue water flows from the top left towards the bottom right, contrasting sharply with the surrounding brown and tan sedimentary land. The land shows signs of erosion and sediment deposition, with various textures and colors indicating different geological or hydrological features.

Awards, Medals and Prizes



22 – 28

The Institute awards numerous medals and prizes in recognition of outstanding contributions to science, technology and management across all disciplines in materials, minerals and mining.

Awards are presented for personal achievement and published work as well as for outstanding contributions to the Institute and its activities. Some awards are aimed specifically at younger people, others recognise technological developments or contributions to education. Awards are presented at special occasions throughout the year, and some award winners deliver lectures to which all members are invited. Prizes are also presented to the best students in specific disciplines and IOM3 runs competitions such as the Young Persons' Lecture Competition to recognise communication and presentation skills. Full details of IOM3 awards and prizes are published on the IOM3 website at www.iom3.org/iom3-awards.

The Institute's **awards, medals and prizes** are awarded for outstanding contributions to science, technology and management in the field of materials, minerals and mining

Premier awards

Futers Gold Medal	C Blackmore
Gold Medal	Materials Strategic Partnership
Griffith Medal & Prize	R Cameron
Institute's International Medal	T Leung
Medal for Excellence	Flexible And Mobile Economic Mineral Processing Technologies (FAME)
Platinum Medal (jointly awarded)	N Alford and P J Withers
Swinburne Medal & Prize	C Bastiaansen
Bessemer Gold Medal	I Samarasekera
Sir Andrew Bryan Medal	A Raine
Chapman Medal	S MacNeil
Sir Colin Humphreys Education Award	S V McLaren
Silver Medal	A Ploszajski

Personal achievement awards

2017 Harvey Flower Titanium Prize (Retrospective)	B Swale
Dowding Medal & Prize	D Shipton
Grunfeld Memorial Award & Medal	J Strong
Frank Fitzgerald Medal & Travel Grant	A Valizadeh
Frank Paine Packaging Award	D Edwards
Hadfield Medal & Prize	J Jaiswal
Hancock Medal	A Muhr
Hume Rothery Prize	K T Jacob
Ivor Jenkins Medal	D Whittaker
James S Walker Award	T Jones
John Hunt Medal	L Greer
Kroll Medal & Prize	J Driscoll
Leslie Holliday	M Hinton
Institute's Technician Medal	J Watson
Local Society of the Year (Large)	IOM3 Hong Kong Branch
Local Society of the Year (Small)	MinSouth
Outstanding Contribution Awards	C Davies, J McGrath
Stockwieg Medal & Prize	R Higginson
Rosenhain Medal & Prize	K-T Yong
Rowbotham Medal	A Tautscher
Roy T Holland Medal & Prize	P Jackson
T B Marsden Professional Award	M May
Thomas Medal & Prize	A-H El-Geassy
Thornton Medal	M Everard
Tom Bell Surface Engineering Medal	A Matthews
Tom Colclough Medal & Prize	N A McPherson
Verulam Medal & Prize	J Pan

Publication awards

Adrian Normanton Award	S Duan, X L Guo, H J Guo & J Guo
Alan Glanvill Award	M Pittol, D Tomacheski, D N Simões, V Ferreira, R R Marlene & C Santana
Billiton Gold Medal	D R Swinbourne, T Richardson & F Cabaltega
Composite Award	P G Jenkins
Cook/Ablett Award	P Mignanelli, N Jones, E Pickering, M Hardy, O Messe, C Rae & H Stone
Douglas Hay Medal	P Morissette, J Hadji Georgiou & A Punkkinen
Guy Bengough Award	A Turnbull
Mann Redmayne Medal A	L Montiel, R Dimitrakopoulos & K Kawahata
Mann Redmayne Medal B	N N Chombongm, C E Suh, B Lehmann, A Vishiti, D C Ilouga, E M Shemang, B S Tantoh & A C Kedia
Mann Redmayne Medal C	C Tunsu, C Ekberg, M Foreman & T Retegan
Materials World Medal (joint)	A Parbhakar-Fox, Matt Buckley
Pfeil Award	M Yu, S Grasso, R Mckinnon, T Saunders & M Reece
Wardell Armstrong Prize	D Klingner & C A Standing
Williams Award	F N H Schrama, E M Beunder, B V d Berg, Y Yang & R Boom

Joint awards with other bodies

2017 Vanadium Award (Retrospective)	C P Scott, F Fazeli, B S Amirkhiz, I Pushkareva & S Y P Allain
Beilby Medal & Prize	G Beckham
Charles Hatchett Award	D Chen, J Wang, T F Chou, B Zhao, M A El-Sayed & M Liu
Robert Perrin Award	G Sawyer

Other awards

Royal Charter Prize	A Siwoniku
R H Craven Award	R Patel
A T Green Award	J Cockburn
Technician of the Year Category A	S Todd
Technician of the Year Category B	B Pollard
Young Persons' National Lecture Competition	S Lawton
Young Persons' World Lecture Competition	K Saltmarsh



Joint Platinum Medal winners, Professor Neil Alford MBE FREng CEng FIMMM of Imperial College London (left) and Professor Phil Withers FRS FREng CEng FIMMM FRAeS of University of Manchester (right).



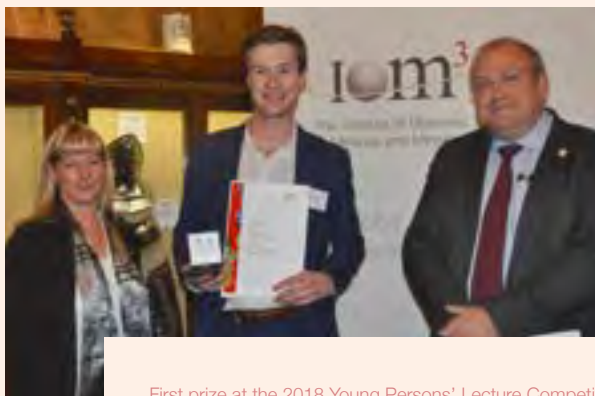
Christine Blackmore CEnv CSci FIMMM receiving the Futers Gold Medal from IOM3 President Martin Cox.



Anna Ploszajski EngD MEng, presented with the Silver Medal by IOM3 President Martin Cox.



S V McLaren receiving the Sir Colin Humphreys Education Award from Sir Colin.



First prize at the 2018 Young Persons' Lecture Competition (YPLC) went to Sam Lawton, from the University of Warwick, for his lecture *Polymer Power: From Light to Current*.



Alex Roquero, a product design student from Brunel University, scoops the top prize at the 2018 Design Innovation in Plastics (DIP) competition with a cleverly designed portable shelf called Hook, which can fit onto any balcony railing.



In the 14th Young Persons' World Lecture Competition Kyle Saltmarsh from Australia was awarded first place, second place went to Hong Kong's Lin Guo, followed closely in third place by Andrew Ng Kay Lup from Malaysia.



Paul Lowes (right) receiving his award for Packaging Star of the Year for his Shop in a Box pack from John Lamb and Mike Swain, at the 2018 Starpack Industry Awards.



Starpack Packaging Team of the Year was awarded to SAICA Pack and Diageo for their collaborative spirits case optimisation project.

Honours and awards

Crown Honours

Damehood

Professor Dame Pratibha Gai FRS FREng FIMMM, Chair of Electron Microscopy at the University of York, was awarded a damehood for her services to chemical sciences and technology.

MBE

Professor Mark Miodownik MBE FREng CEng HonFIMMM, Professor of Materials Science at University College London for his services to science, engineering and broadcasting.

CBE

David Eyton CBE FREng CEng FIMMM, BP Head of Technology for services to engineering and energy.

Fellowships

Fellows of the Royal Society

- Professor Robin Grimes FRS CEng FIMMM

Fellows of the Royal Academy of Engineering

- Professor Rachel Thomson FREng CEng FIMMM
- Professor Judith Driscoll FREng CEng FIMMM
- Professor Andrew Lewis FREng FIMMM

Other Awards

China's highest award for a foreign scientist – International Science and Technology Co-operation Award

- Professor Phil Coates FREng CEng FIMMM

Top 50 Women in Engineering

The Women's Engineering Society (WES) 'WE50' list of 50 women under 35 years of age acknowledges 50 of the engineering industry's most inspirational young females. In 2018 it included IOM3 member Dr Katie Atkinson CEng MIMMM, Materials Engineer at Jaguar Land Rover.



Local Society of the Year (Large)

The IOM3 Hong Kong Branch received the Large Local Society of the Year award in 2018. Their award was based on high attendance numbers and good academic/industry interaction through a full events schedule.

The strong leadership provided by the IOM3(HK) council, which includes several recipients of IOM3 Recognition Awards, has enabled the branch to further extend into both the industry and academia. The active fostering of relationships with local universities has also led to the broader recognition of the branch locally as well as of IOM3.

Tim Leung and Andrew Raine received the award on behalf of IOM3(HK).



Local Society of the Year (Small)

MinSouth received the Small Local Society of the Year award in 2018. Their award was based on their thorough application, work with younger members, strong programme and excellent social media presence

They continue to support the development of future professionals. This includes sponsorship grants to undergraduates, funding of membership of IOM3, grants towards field trips and similar educational processes. They also support STEMNET and ESTA, the IOM3 Young Persons' Lecture Competition and provide readily accessible educational resources on their website. They plan to use the prize money to further fund educational initiatives.

The award was presented to Angus James Monsin, representing MinSouth at the awards ceremony.

Financial review

Overview

2018 was a challenging year for the Institute with both the team and trustees concentrating on improving the financial performance of Institute activities against a difficult economic backdrop.

The Institute finished the year with a combined overall deficit of £3,267k, a significant increase on the deficit of £7k achieved in 2017. Despite strengthening performance of some of the Institute's main income streams and continuing cost control, the market value of the Institute's investments portfolio fell by £909k resulting in a significant adverse impact on the year-end results.

The Institute's main activities had varied performance in 2018, with conferences and publishing streams performing particularly well, while training and consultancy struggled in the uncertain political and economic climate. As a result, the Institute's total revenue saw a slight decrease of 3.8% from £4,164k in 2017 to £4,007k in 2018. The Institute's management continued with the cost control programme initially implemented in 2015 and as a result, the costs of running the Institute and its subsidiaries have stabilised with a small decrease of 1.8% in operating costs. Following revaluation of the Institute's freehold properties to their market value, overall costs have increased from £4,735k in 2017 to £6,875k in 2018. The full breakdown of the Institute's income streams and their performance compared to 2017 can be seen on page 44. While the Institute's 150th anniversary takes centre stage in 2019, in the background the team and trustees continue to look for further cost savings and new income streams to ensure the Institute starts operating at break-even level as soon as possible.

As with other organisations, the costs of running a defined benefit pension scheme and funding its deficit continue to have significant effect on the financial results and strategic development of the Institute. In order to free cash flow for operating requirements, during the 2016 actuarial valuation the Institute and the pension scheme trustees agreed to place a first charge of £610k against the London property and for the pension scheme to pay its own running costs for 2.5 years from January 2017. Such a move enabled the Institute to invest freed up funds in the development of new income generating activities. The pension scheme is undergoing its triennial actuarial valuation in 2019 and new deficit funding terms will be agreed with the pension scheme trustees during the valuation process.

Investments review

Most of the Institute's investments portfolio is managed by BlackRock. The Institute has adopted a policy of maximising total returns from investments commensurate with acceptable risk for a charitable organisation. Amounts required to fund operations of the Institute are set aside in a short-term fund consisting of cash or easily realisable investments. All other investments are placed in a long-term fund. An appropriate benchmark (depending on the Institute's requirements) is agreed with the investment managers to measure performance.

In addition to disinvestment of £200k during the year to assist with cash flow requirements, the Institute's investments saw a sharp fall in market value compared to 2017. Overall, the market value of the Institute's restricted and unrestricted portfolios fell by 11.5% year on year, with approx. 8.2% of the change occurring during the last quarter of 2018.

Approximately 70% of the Institute's investments portfolio is held in the Charishare Fund, an equities investment fund developed for the not for profit sector. Stock markets had been a major beneficiary of the low interest rate and loose monetary policy environment since the global financial crisis, but as US interest rates rose and the China/ US trade tensions started to be felt in the real economy, investors took fright. Having marked an all-time high in September, US equities sold off sharply at the beginning of October, signalling the beginning of a distinct shift in investor sentiment. The weakness in the US market had a knock-on effect on markets globally, resulting in the worst annual performance for global equities since 2008.

The UK equity market endured a torrid last quarter of 2018 as markets tumbled on concerns around political uncertainty and slowing economic growth and delivered the worst financial return since the financial crisis. Arguments over the Italian budget deficit and protests in France added to the uncertain environment in Europe. The performance of the Resources sector was split: mining performed well despite softness in China, but oil & gas slid as OPEC failed to arrest the steep decline in oil price.

At the end of 2018, the combined value of the Institute's investments held with BlackRock was £8,414k. As mentioned earlier, equities markets have been extremely volatile and by 31 March 2019, the market value of the Institute's investments recovered to £9,017k, equalling an increase in value of 7.2%.

Freehold properties review

The Institute owns two freehold properties, one in London and one in Stoke-on-Trent. In line with the Institute's accounting policies, both properties were revalued to their present market value at the beginning of 2019.

Overall economic and property market conditions have deteriorated somewhat since both properties were bought and/or last revalued in 2014. As a result, the value of the Institute's London office reduced from £13.5m to £10.7m and the value of the Institute's Stoke office reduced from £300k to £270k. Both valuations represent a significant reduction on market values previously recognised on the Institute's Balance Sheet and are due to a combination of factors attributable to the individual property markets.

Members may recall that the London property was bought at the end of 2014 and at that time had planning permission for residential conversion. In 2014 the Central London residential market was particularly buoyant with Savills Prime London Residential Capital Index peaking at 231.9. Since then, the planning regime has become more reluctant to lose office space to residential, affordable housing requirements have become more stringent, and the Index currently stands at 183.7.

Secondly, at the time of purchase the Institute was in competition with at least one other owner occupier which in the final stages forced bidding beyond normal market expectations. Finally, in recent months the property market has seen a degree of caution in relation to the uncertainty around Brexit.

The Stoke property was last revalued in February 2014 and although the overall local property market has gradually improved since then, the office sector remains one of the weakest performing of the local property market, leading surveyors to conclude that the market value attributed to the property in 2014 was too optimistic.

Given the circumstances outlined above and the fact that no significant events occurred since 31 December 2018 that would have had material effect on the market value of either of the properties, trustees chose to recognise a combined loss of £2.5m on revaluation of market value of freehold properties in the 2018 Statement of Financial Activities, in line with guidance provided by Charities SORP and FRS 102.

Reserves review

Council's policy on reserves is to:

- Set aside sufficient reserves to fund the net book value of all tangible fixed assets and the cost of future capital expenditure requirements. These amounts are held in the asset development fund and total £10,680k at 31 December 2018.
- Set aside reserves to develop and improve the quality of services provided by the Institute. These reserves are held in the services development fund and total £57k as at 31 December 2018.
- Retain sufficient liquid reserves to cover the future expenditure of charitable, management and administrative costs of up to one year. This level of reserves is considered appropriate to allow the Institute to be managed effectively, to provide a buffer for uninterrupted services and to achieve the long-term objectives of the Institute. The unrestricted reserves total £3,037k at the year end and represent 77% of the budgeted operating expenditure for 2019. The trustees are aware that this level of reserves is insufficient to achieve the long-term objectives of the Institute and are currently looking at ways of maximising the use of Institute's fixed assets and broadening the use of restricted funds.

In light of the challenges faced by the Institute's activities and the desire for additional events celebrating the Institute's heritage and its communities to take place throughout 2019, the Council has set a budget for net expenditure of £434k for 2019 to support initiatives for the development of membership and training programmes, resume deficit funding of the defined benefit pension scheme, as well as additional funds to mark the Institute's 150th anniversary.

Principal risks and uncertainties

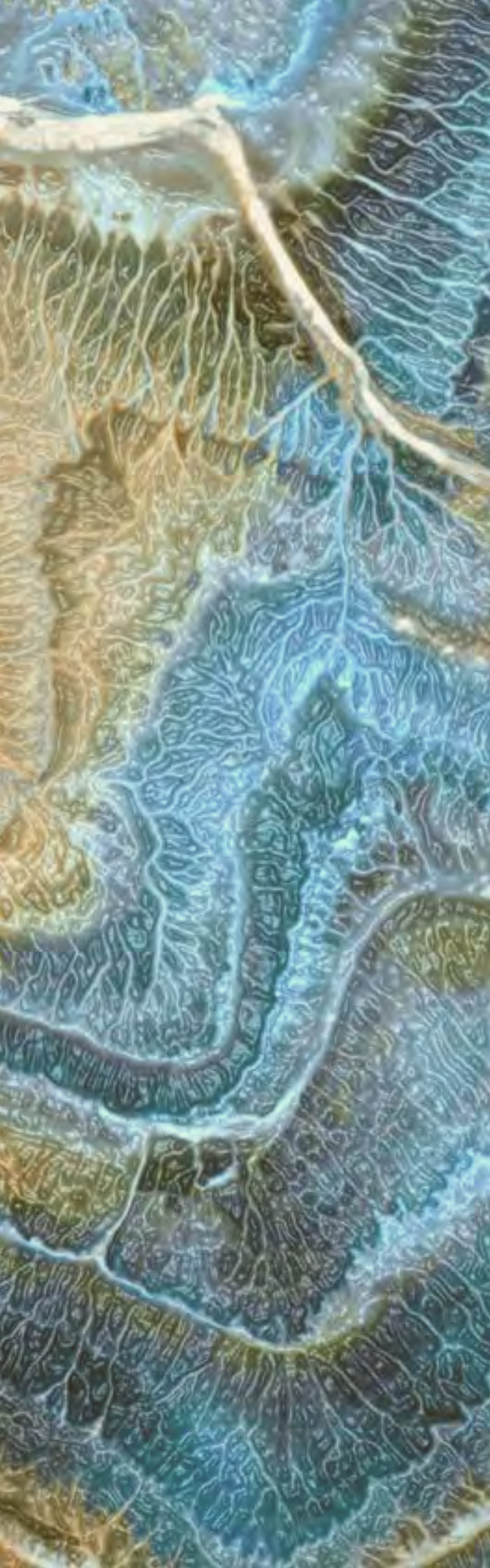
Council has identified the following major risks facing the Institute:

- Failure of IT systems and compromise to the use of the membership database as a result of cyber security breach;
- Loss of members through the ageing population and economic impact within the industry;
- Difficulty in maintaining the current income streams;
- Financial impact of the deficit of the defined benefit pension scheme on the Institute's future strategy;
- Major adverse change in investment values.

The risk register is being reviewed and updated on a regular basis and the trustees, team and professional advisors are taking steps to mitigate these risks and minimise their impact on the Institute's future performance.

A detailed, colorful cross-section of a plant stem, likely a dicot, showing various tissues. The image displays a central pith, surrounded by a cortex, and several vascular bundles arranged in a ring. Each vascular bundle contains primary xylem (stained blue), secondary xylem (stained green), a vascular cambium (stained yellow), secondary phloem (stained orange), and primary phloem (stained red). The overall structure is highly organized and shows the complex internal anatomy of the stem.

Structure and Governance



The founding body of this Institute was created in 1869. The Institute of Materials, Minerals and Mining is a body incorporated by Royal Charter dated 25 July 1975 and modified on 26 June 2002 and is a Registered Charity in the UK.

The Institute is governed by a broadly based Council whose members represent the full scope of interests of its membership. Councillors are the Trustees of the Institute and are elected to represent members by discipline, region and grade. The responsibility for the ongoing management of strategy and performance of the Institute lies with the Managing Board, whose membership is drawn from senior members of the Institute. An Audit Committee keeps under review the effectiveness of the Institute's financial reporting, internal control policies and operating procedures, and has a broad remit to review all elements and levels of Institute governance and function.

Proposals for changes to the Institute's governance structure have been approved by the Members but have yet to be agreed by the Privy Council. The following pages describe in more detail the composition and remit of the Institute's current boards and committees, as well as the proposed governance changes.

Structure, governance and management

Council

The governance of the Institute is vested in the Council. Members of Council, other than co-opted members, are trustees of the Institute for the purpose of charity law. Under the Bye-Laws of the Institute, members of Council are elected by members of the Institute at the annual general meeting to serve for varying terms. Under the Institute's regulations, Council is entitled to co-opt honorary vice presidents and five members of Council.

Regular induction meetings are held for new Council members to ensure that they understand their responsibilities as trustees of the charity. The induction process provides trustees with information about the role of Council, its supporting boards and the organisational structure of the Institute. The objects of the Institute together with the mission statement and corporate strategies are explained. Each trustee is provided with an information pack and points of access to further details. Ongoing training is provided to trustees in relation to the individual responsibilities undertaken by them wherever appropriate.

Council meets at least three times during the year to review strategy and approve operating plans and budgets.

Council has overall responsibility for ensuring that the Institute has appropriate systems of control, financial and otherwise. It is responsible for safeguarding the assets of the charity and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities. Council has introduced a formal risk management process to enable it to assess business risks and implement risk management strategies on a regular basis. It involves identifying the types of risks the Institute faces, prioritising them in terms of potential impact and likelihood of occurrence, and identifying means of mitigating the risks. As part of this process Council reviews the adequacy of the charity's current internal controls. The systems of internal control are designed to provide reasonable, but not absolute, assurance against material misstatement or loss. They include:

- an annual budget approved by Council
- regular consideration by Council of financial results, variance from budgets, non-financial performance indicators and benchmarking reviews
- delegation of authority and segregation of duties.

The law applicable to charities in England and Wales requires Council to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the charitable group and the charity, and of the incoming resources and application of resources of the charitable group for that period. In preparing those financial statements, Council is required to:

- select suitable accounting policies and apply them consistently
- observe the methods and principles in the Charities SORP (Statement of Recommended Practice)
- make judgements and estimates that are reasonable and prudent

- state whether applicable UK accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements
- prepare the financial statements on a going concern basis unless it is inappropriate to presume that the charity will continue in business.

Council is responsible for:

- preparing the trustees' report and the financial statements in accordance with applicable law and United Kingdom accounting standards (Generally Accepted Accounting Practice)
- keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the Institute and enable Council to ensure that the financial statements comply with the Charities Act 2011, the applicable Charity (Accounts and Reports) Regulations and the provisions of the Royal Charter and Bye-laws
- safeguarding the assets of the charity and taking reasonable steps for the prevention and detection of fraud and other irregularities
- the maintenance and integrity of the charity and financial information included on the charity's website in accordance with legislation in the United Kingdom governing the preparation and dissemination of financial statements.

The Council are aware of the early adoption by the charity of the Charities SORP (FRS 102) issued in July 2014, rather than applying the Charities 2005 SORP which has been withdrawn but is still referred to in the extant Charities (Accounts and Reports) Regulations 2008. This departure has been necessary for the financial statements to show a true and fair view in accordance with United Kingdom Generally Accepted Accounting Practice effective for accounting periods beginning on or after 1 January 2015.

Audit Committee

The Audit Committee, which reports to the Managing Board and Council, comprises a chair and four other members who are not associated with the Managing Board or management of the Institute. Appointments are endorsed by Council. Members who served during the year are set out on page 39. The committee normally meets twice a year or as the chairman of the committee sees fit. The Chief Executive and Finance Director generally attend, with others invited as and when appropriate. The committee is authorised to keep under review the effectiveness of the Institute's financial reporting, internal control policies and operating procedures, together with a broad remit to review all elements and levels of Institute governance and function. Advice is given on the appointment of external auditors. A regular dialogue is maintained with the Institute's external auditors to review matters identified from audits as being in need of management attention and the actions to be taken to resolve the same. The chairman has direct access to the President and Council.

The Audit Committee began two comprehensive internal audits during the year which are still in progress. The Committee, together with an internal audit working group, is continually active in a wide range of reviews covering disbursements to local groups and scholarships, the process of professional membership, capital projects and the effectiveness of governance procedures. This is in addition to regulatory financial assessments and, through this well developed audit process, the Committee provides to the Institute's officers and management, a valuable mechanism for maintaining the highest standards of systems and controls.

Managing Board

Council delegates its responsibility for the ongoing management of strategy and performance of the Institute to the Managing Board. Membership of this board is drawn from senior members of the Institute and employees. The day to day management of the Institute's activities is delegated to the Chief Executive and his team. The Managing Board reviews the progress of the Institute's subsidiaries, boards and committees.

IOM Communications Ltd

The charitable trading activities are carried out by this wholly owned subsidiary. The Board of this company meets regularly to assess the commercial opportunities and effectiveness of the company's trading activities.

Nominations Committee

The committee reviews the role, membership and performance of the major committees including Council and provides nominations for succession planning of Institute officers. The committee also oversees adherence to the Charter and Bye-Laws.

Remuneration Committee

The committee agrees the remuneration package for all executive directors and key management personnel and the overall levels of remuneration for other staff. Remuneration is set on the basis of level of responsibility and experience.

Industry and Technology Policy Board

The board is responsible for the co-ordination of 22 technical divisions and groups. In turn, the role of the divisions is to further the networking and professional development of their members. The board consists of the divisional chairs who are elected by the technical community they represent.

Professional Policy Board

The board is responsible for membership, education, accreditation and professional development and technician activities. Four committees support the board.

Local Affairs Board

The board is responsible for the promotion of the interests of regional members, communication between Council and regional members and the establishment of links with affiliated local societies.

International Affairs Board

The IAB is responsible for communications between the Institute and its international communities. It also encourages the development of new activities and communities outside the UK.

Younger Members' Committee

Younger members play a vital and active role in the development of the Institute and their activities are co-ordinated by the Younger Members' Committee.

External Affairs Group

The group makes submissions to UK government, parliamentary committees and the European Commission on behalf of the Institute.

Women in Materials Group

The IOM3 Women in Materials Group was formed in 2012 to raise the profile of women members within IOM3, to support networking, mentoring, and work in schools to educate girls about the benefits of a career in science and engineering.

Materials Institute Services Ltd

This is a wholly owned subsidiary responsible for non-charitable activities. The company recommenced activities from 1 January 2016.

PIABC Ltd

PIABC Limited is a specialist awarding body for professional qualifications in the materials cycle. It is a wholly owned subsidiary of IOM3.

Changes to IOM3 governance

Following the EGM held on 3 July 2012 which supported the proposal to amend the governance of the Institute, there was a long period during which comments from third parties to both Privy Council and Engineering Council slowed progress. This pause in progress turned out to be beneficial, as some of the guidance from regulators had changed during this time. This, together with changes to some other elements of governance (such as the titles of the primary boards of the Institute), necessitated additional slight amendments to the draft of the Bye-Law changes. The proposed changes are important to implement current best practice and to comply with guidance from external organisations such as the Charity Commission. The proposals were extensively debated by Council, with much thought going into the inter-relationship of Charter, Bye-Laws and Regulations. Safeguards are provided for the democratic operation of the Institute.

New documents detailing the proposed changes were sent to all IOM3 members in the spring of 2018 and IOM3 members voted 98.6% to accept the proposals at an EGM held on Tuesday 10 July 2018. The proposals for Governance Change were subsequently submitted to the Engineering Council and Society for the Environment for their comments before the revised Bye-Laws are sent to the Privy Council for approval.

The primary change to Governance embodied in the proposals is to bring the size of the governing body into line with best practice and Charity Commission guidance. This change should also make decision-making more efficient. The Institute Council numbers around 50 and these Councillors are also the trustees of the charity. The changes to Governance will retain a Council of similar size, but make it advisory to a smaller decision-making trustee body to be called the Executive Board.

The changes will free the Advisory Council from management issues and enable it to concentrate on strategy. Once free of statutory obligations, the Advisory Council can give its time to investigating future needs and opportunities for the Institute and recommending the strategic direction on all aspects of the Institute. The smaller Executive Board will be able to meet more frequently and act more quickly in addressing management and business opportunities. The Institute will have a structure that follows current best practice and that enables it to function more effectively in the fast moving technological and business world.

Governance changes Phase 2

The IOM3 Governance Working Group has been looking at the organisation of IOM3 boards reporting to the new Executive Board, with a view to streamlining and consolidating activities and reporting structures. Draft proposals have been agreed by Council and will be implemented once Phase 1 of the Governance Change is in place.

Composition of proposed Advisory Council

The Advisory Council will draw representatives from across the interests within the Institute. Elections from the membership will continue to be overseen by an ongoing Nominations Committee.

- The President, Senior Vice-President and two Vice Presidents will be *ex-officio* members.
- 20 members will be elected from Society, Division and cross-cutting group chairs.
- Eight members will be elected from the different grades of membership.
- Six members will be drawn from UK and overseas regions.
- Co-options will enable areas of expertise on the Advisory Council to be reinforced.

Composition of proposed Executive Board

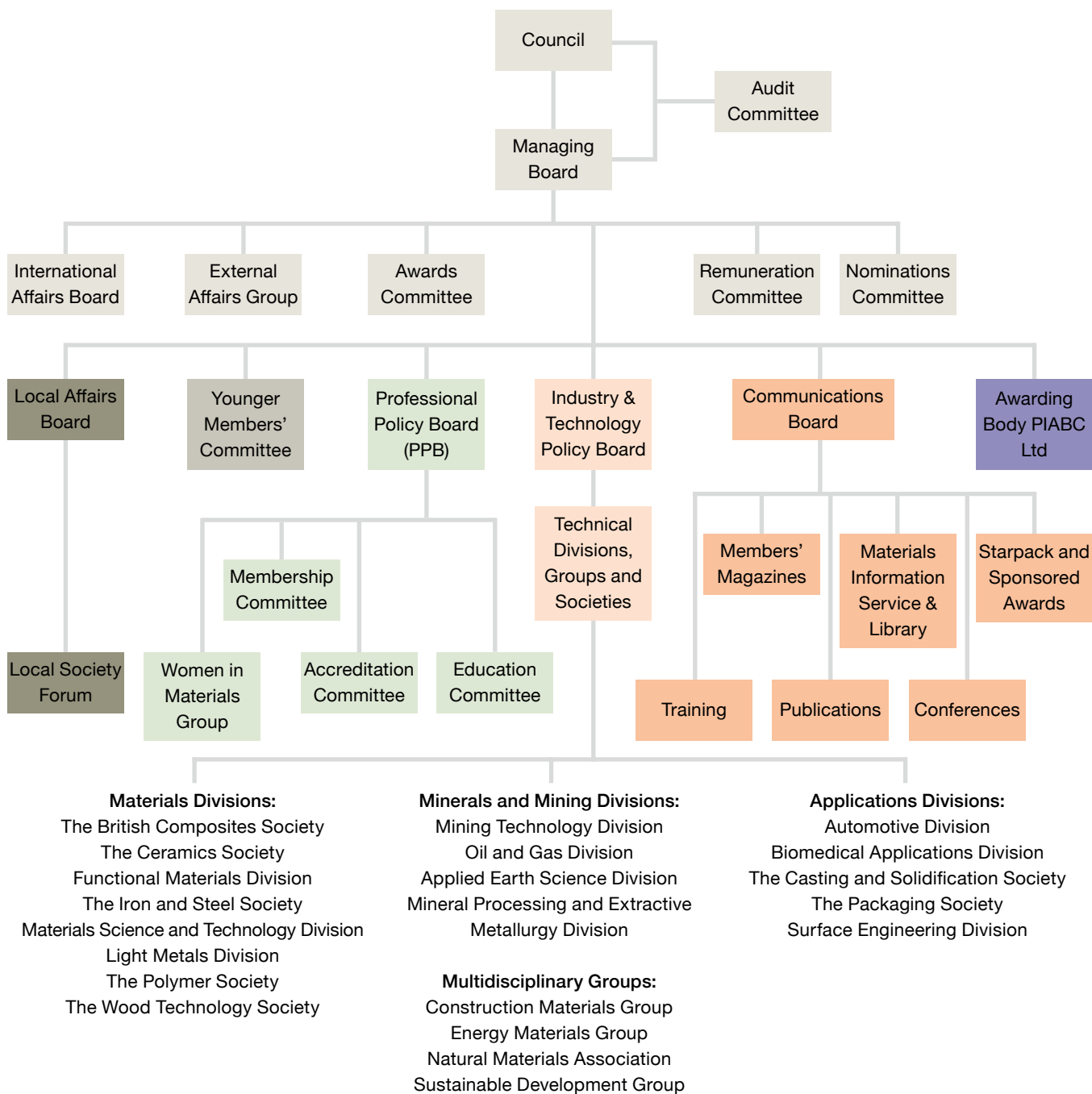
The Executive Board (the trustee body) will comprise the immediate Past President as chairman, the President, Senior Vice President, two Vice Presidents and Honorary Treasurer. It will also include the Chairs of the primary boards of the Institute, as follows:

- Technology Communities Board (currently Industry and Technology Policy Board)
- Professional Standards and Development Board (currently Professional Policy Board)
- Members' Board (currently Local Affairs Board)
- International Affairs Board
- Younger Members' Committee
- Commercial Services Board (currently Communications Board)

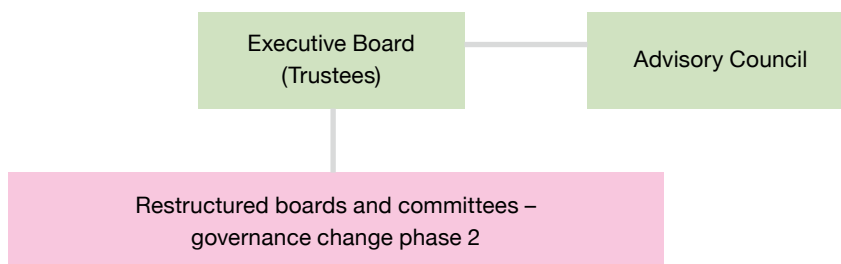
An additional two members will be elected from the Advisory Council and two members co-opted to reinforce areas of expertise.

The method of appointment for the officers of the Institute (President, Vice-Presidents and Honorary Treasurer) will not change from current practice, which is led by the Nominations Committee.

IOM3 structure (2018)



Proposed new structure



Objectives and activities

The objects of the Institute, as set out in the Royal Charter, shall be: To advance and develop all aspects of the science, engineering and technology of the discovery, exploration, development, characterisation, exploitation, processing, application and recycling of materials, minerals and fuels; To further and co-ordinate education, training and practice in these disciplines and to facilitate the acquisition, preservation and dissemination of knowledge pertaining to these disciplines. In pursuing these objects in so far as they may be similar to those of existing organisations, the Institute shall use its best endeavours to co-operate with them and to ensure that its activities are complementary to those of such organisations.

Through our activities we aim to:

- Raise the profile of our sector as a technology vital to the wealth of the nation
- Provide a central resource of expertise and information
- Support and encourage education in materials, minerals and mining to attract young people to the profession
- Disseminate information through conferences, events, publications, online resources, social media
- Provide networking opportunities through technical, local and other activities to increase interaction between industry, academia and government
- Increase the visibility of new technology to industry
- Provide our members with benefits, services and opportunities to support their careers.

Twenty two special interest groups (see page 35) act as a focus of expertise within the broad range of technical sectors embraced by the Institute. Each group holds regular meetings and, through its supporting network of committees and members, organises a programme of events to promote and develop its discipline. Each also maintains its own online microsite and communicates its activities to members and non-members alike through web content, newsletters and social media. Events organised by the technical groups are open to all and serve to inform about the latest developments within the discipline as well as providing networking opportunities for people from academia, industry and government, often in an international context. Networking events attract non-members from the UK and overseas, who often make up at least 75% of the event audience.

A network of affiliated societies in the UK and overseas provides activities at a local level, delivering a regular programme of evening lectures, site visits and seminars that are open to all. Some affiliated societies also engage with local schools, universities and businesses to provide valuable support for teaching and learning.

The Institute has an active education programme to attract young people into a career in the materials, minerals and mining science, engineering and technology sector. The Schools Affiliate Scheme (with over 1200 registered schools) provides help, advice and teaching materials free of charge to schools and the education team regularly attends schools and careers fairs. Our schools presentations have so far been delivered to over 80 000 pupils throughout the UK. The Education team also organises study days for teachers and events to allow older pupils to interact with young people already working in the sector.

The Institute accredits a number of university, college and industry courses in the UK and overseas, and provides a special low cost membership package for undergraduates, which is often sponsored by local societies or by their university. A thriving Younger Members' Committee organises regular events for students and younger members. A relatively recent addition to our activities, the Women in Materials group promotes networking for women in the materials profession and strives to provide support for women in STEM careers.

The Institute's divisions, boards and committees are all composed of volunteers mostly drawn from the Institute's membership, who freely give their time and expertise to further the Institute's professional activities, develop its communities and provide peer review processes where needed. The Institute depends on the engagement of its members in the broad range of its activities and could not deliver its objectives effectively without their significant contribution.



A high proportion of students participating in IOM3 schools outreach events go on to study the subject at university



IOM3 has a long-running and successful programme of schools outreach through its Schools Affiliate Scheme. Visits to schools are complemented by events for teachers, sixth formers and year 10 pupils to introduce them to the subject of materials, minerals and mining

Members of the Institute play a prime role in promoting our objects and providing public benefit. Accordingly, a wide range of member services and benefits have been developed in pursuance of our objectives and to attract newcomers to the Institute. Benefits of membership include professional recognition, networking opportunities to share knowledge and experience, free materials information services, a members' magazine, a members' business centre and use of facilities, discounted conference fees, training courses and publications, and additional online services. The Institute provides support to its worldwide membership through its UK offices, its technical divisions and societies, and its network of affiliated local societies. Career progression is recognised through various grades of membership and the Institute is licensed to deal with applications for Chartered Engineer, Chartered Scientist, Chartered Environmentalist, Incorporated Engineer, Engineering Technician, Registered Scientist and Registered Science Technician status. The Institute collaborates with many like-minded societies in the UK and overseas.

The Institute works closely with government and EC departments particularly in relation to the delivery of new technology to industry. This work has enhanced the reputation of the Institute and it is now seen as a first port of call in its area of expertise. We are also increasingly called upon by the national media to provide comment or signposting for high profile news stories as well as technical articles for the specialist press. The Institute maintains an extensive resource of technical and historical publications that form the core of its information and library services, a source of expertise accessible to all. The Materials Information Service provides consultancy and advice services to anyone who needs access to expertise in

materials, both individuals and organisations. Of the 1500 enquiries routinely handled each year, 50% originate from the UK public. Our Industry Affiliate Scheme allows small and medium sized enterprises direct access to our information and consultancy services.

Through its subsidiary, IOM Communications Ltd, the Institute publishes technical books, learned journals and member magazines and organises conferences on materials, minerals and mining related subjects. The publishing of technical books and learned journals is outsourced to Taylor & Francis. Access to this material is available to both members and non-members. In-house teams publish the member magazines and organise the majority of conferences. IOM Communications Ltd also operates information services and provides consultancy advice on materials. All these services are fundamental in achieving the Institute's objectives.

Stimulating innovation in the use and application of materials, the Institute organises both UK and worldwide competitions to develop a broad understanding of the importance of materials and minerals. Non-members are encouraged to take part in competitions related to soft skills, the use of plastics and innovations in packaging, and such events engage with schools, students and businesses from the UK and Europe. Separately the Institute provides an extensive range of awards both to members and non-members who have provided outstanding contributions to the community that the Institute supports.

There is a regular programme to ensure that employees are involved in the direction and progress of the Institute. Employees are consulted and kept fully informed on issues of concern to them. Training and development appropriate to the Institute's goals is assessed on a regular basis and provided both internally and externally.

Officers and Council members (from 1 January 2018 to May 2019)

President	Prof S M Best CBE FEng CEng FIMMM (from January 2019) Mr M C Cox CEng FIMMM (to December 2018)
Honorary Treasurer	Dr M J May FEng FIMMM
Vice Presidents	Mr N E Glover CEng FIMMM Dr K Thornton CEng CSci FIMMM Dr P J E Bischler CEng CSci FIMMM
Chair of Managing Board and Past President	Dr M A Hicks (to December 2018) Mr M C Cox CEng FIMMM (from January 2019)
Chair of Professional Policy Board	Dr C W Corti CEng CSci FIMMM
Chair of Industry and Technology Policy Board	Mr K A Harrison CSci FIMMM
Chair of the Local Affairs Board	Dr P J E Bischler CEng CSci FIMMM
Chair of Younger Members' Committee	Dr S Cruchley MIMMM (from February 2018) Dr K Thornton CEng CSci FIMMM (to February 2018)
Chair of International Affairs Board	Mr B D Lye CEng CSci FIMMM (to October 2018)

Council members representing corporate members from the regions

Scotland	Dr C S Hindle CEng FIMMM
North East	Vacancy
North West	Vacancy
Midlands	Mr D R Evetts CEng FIMMM
South East	Vacancy
South West & Wales	Vacancy

Council members representing all corporate members

Professional Members & Members	Dr J R Wilcox CEng MIMMM
Honorary Fellows & Fellows	Vacancy
Associate Members	Mr S J Wood IEng AIMMM
Technician Members	Mr S L J Bellaby EngTech TIMMM

Council members representing disciplines

Metals	Dr K A Ridal CEng FIMMM
Ceramics	Prof J G P Binner CEng FIMMM
Plastics & Rubber	Mr K L Forsdyke CEng CSci FIMMM
Minerals & Mining	Mr R G Siddall FEng CEng FIMMM

Divisional board chairmen

Applied Earth Science	Mr J J Aldridge MIMMM
Automotive Applications	Mr J S Hayes CEng FIMMM
Biomedical Applications	Prof A L Lewis FEng FIMMM
The British Composites Society	Dr D Kells CEng FIMMM
The Casting & Solidification Society	Dr S A Butler CEng MIMMM
The Ceramics Society	Dr A M McDermott FIMMM
Functional Materials	Prof R A Dorey CEng CSci FIMMM
Light Metals	Dr M R Clinch FIMMM
Materials Science & Technology	Prof M R Jolly CEng CEnv FIMMM
Mineral Processing & Extractive Metallurgy	Mr A D Francis CEng FIMMM
Mining Technology	Mrs C A Blackmore CEnv CSci FIMMM
The Packaging Society	Mr I M Davis FIMMM
Oil & Gas	Dr A J Sturgeon CEng FIMMM
The Polymer Society	Mr S Patrick FIMMM
The Iron & Steel Society	Dr M S Brunnock CEng FIMMM
Surface Engineering	Dr D S Rickerby FIMMM
The Wood Technology Society	Mr J H Park FIMMM (to March 2019) Dr G Ormondroyd FIMMM (from March 2019)

Advisory Council members

Elected to serve when the first phase of governance change has been implemented (see page 34)

Mr B Edy CEng FIMMM,
Mr J Sellors CEng FIMMM,
Mr W J Tinsley CEng FIMMM,
Dr C Fenn CEng FIMMM,
Mr A Partridge CEng FIMMM

Senior boards and professional advisors

Managing Board

The Managing Board is chaired by the immediate past president and includes the following:

The President
 Senior Vice-President
 Honorary Treasurer
 Vice Presidents
 Chair of IOM Communications Ltd
 Chair of Professional Policy Board
 Chair of Industry & Technology Policy Board
 (to March 2019)
 Chair of Local Affairs Board
 Chair of International Affairs Board
 Chair of Younger Members' Committee
 Chair of PIABC (from February 2018)
 Chief Executive
 Finance Director
 Co-opted Member

Board of Directors

IOM Communications Ltd

The following served as directors during the year:

Chair	Mr J C H Lewis CEng CEnv FIMMM
Directors/trustees	Dr A T Cole CEng CSci FIMMM Dr M J May FEng FIMMM Mr K Shankland CEng FIMMM Prof A L Greer FEng CEng FIMMM Dr S Garwood FEng CEng FIMMM Dr A J Tinker
Chief Executive and trustee	Dr B A Rickinson CEng FIMMM (to November 2018) Dr C Church CEnv FIMMM (from November 2018)
Company Secretary	Ms J Bugajeva

Audit Committee

Chair	Mr P J K Haslehurst CEng FIMMM Mr C Hallas CSci FIMMM Mr M Chapman CEnv FIMMM Mr B A Bhat NONP2X Dr R Ambury CEng CSci FIMMM (from March 2018)
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Key management personnel

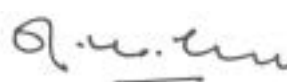
Chief Executive	Dr B A Rickinson CEng FIMMM (to November 2018) Dr C Church CEnv FIMMM (from November 2018)
Finance Director	Ms J Bugajeva
Director of Communications	Dr I A N Staniaszek FIMMM
Director of Sales and Marketing	Ms K Harrison
Director of Membership and Professional Development	Mr I J Bowbrick CEng CEnv FIMMM
Director of Administration	Ms C M Tuke (to April 2019)

Professional advisors

Bankers	Santander UK plc 4th Floor 100 Ludgate Hill London EC4M 7RE
Solicitors	Allen & Overy LLP One Bishops Square London E1 6AD Howes Percival LLP 3 The Osiers Business Centre Leicester LE19 1DX
Auditors	RSM UK AUDIT LLP 25 Farringdon Street London EC4A 4AB
Investment Managers	Blackrock Investment Management (UK) Ltd 12 Throgmorton Avenue London EC2N 2DL
Actuaries	First Actuarial LLP Second Floor, The Square Basing View, Basingstoke Hampshire RG21 4EB

RSM UK Audit LLP has indicated its willingness to continue in office.

This report was approved by the trustees on 3 June 2019



Mr M C Cox

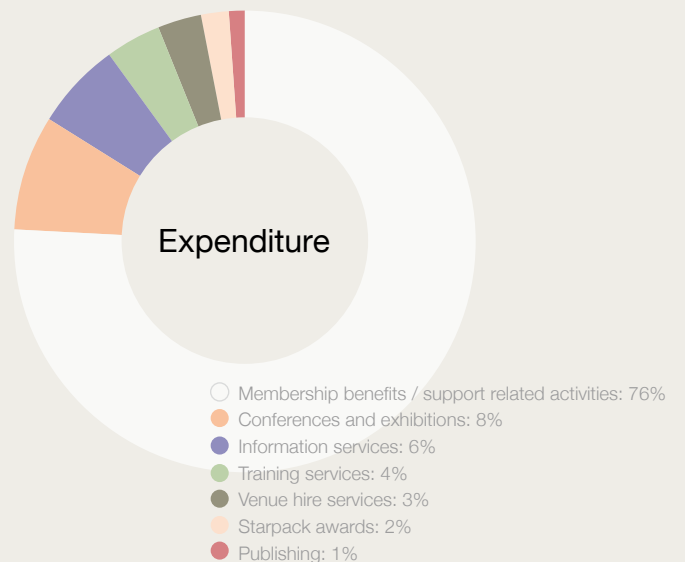
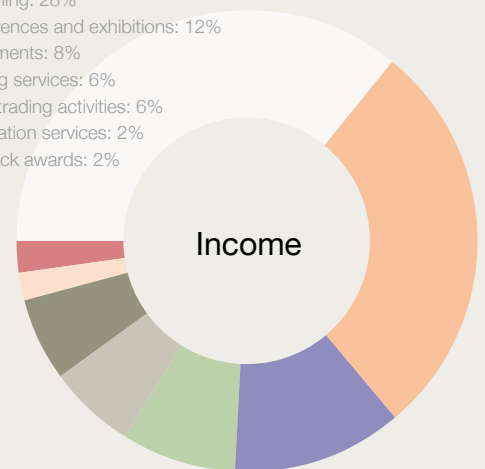


Financial Statements



The following pages detail financial activities for the year ended 31 December 2018, reflecting operating performance, assets and obligations. Income and expenditure for the year are summarised in the charts below.

- Membership subscriptions and related activities: 37%
- Publishing: 28%
- Conferences and exhibitions: 12%
- Investments: 8%
- Training services: 6%
- Other trading activities: 6%
- Information services: 2%
- Starpack awards: 2%



Independent auditor's report to the trustees of the Institute of Materials, Minerals and Mining

Opinion on financial statements

We have audited the financial statements of The Institute of Materials Minerals And Mining (the 'charity') and its subsidiaries (the 'group') for the year ended 31 December 2018 which comprise the Consolidated Statement of Financial Activities, the Consolidated and charity Balance Sheets, the Consolidated and charity Statements 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 group's and charity's affairs as at 31 December 2018 and of their incoming resources and application of resources for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Charities Act 2011.

Basis for opinion

We have been appointed as auditors under section 151 of the Charities Act 2011 and report in accordance with regulations made under section 154 of that Act.

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 group and parent 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.

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 group's or parent 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, 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.

Matters on which we are required to report by exception

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

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

Responsibilities of trustees

As explained more fully in the Statement of Trustees' responsibilities set out on page 32, the trustees are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees 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 group's and parent charity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the group or parent charity or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

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 provided on the Financial Reporting Council's website at <http://www.frc.org.uk/> auditorsresponsibilities. This description forms part of our auditor's report.

Use of our report

This report is made solely to the charity's trustees, 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 charity's trustees those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charity and the charity's trustees as a body, for our audit work, for this report, or for the opinions we have formed.

RSM UK AUDIT LLP
Statutory Auditor
Chartered Accountants
25 Farringdon Street
London
EC4A 4AB

Date: 13 June 2019

RSM UK AUDIT LLP is eligible to act as an auditor in terms of Section 1212 of the Companies Act 2006

Consolidated statement of financial activities for the year ended 31 December 2018

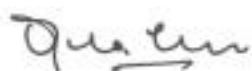
	Notes	Unrestricted funds		Restricted funds	Permanent endowment	Total funds 2018	Total funds 2017
		General £'000	Designated £'000	£'000	£'000	£'000	£'000
INCOME AND ENDOWMENTS FROM:							
Donations and legacies	4	-	-	-	-		12
Charitable activities							
Membership and related activities		1,491	-	-	-	1,491	1,507
Charitable trading activities	3	1,987	-	-	-	1,987	2,041
Other trading activities	5	227	-	-	-	227	309
Investments	6	240	3	59	-	302	295
Total income		3,945	3	59	-	4,007	4,164
EXPENDITURE ON:							
Raising funds	5	227	-	-	-	227	289
Charitable activities							
Membership and related activities		2,886	2,308	32	-	5,226	2,998
Charitable trading activities	3	1,422	-	-	-	1,422	1,448
Total expenditure	7	4,535	2,308	32	-	6,875	4,735
Net (losses)/gains on investments		(739)	(9)	(161)	-	(909)	661
Net (expenditure)/income		(1,329)	(2,314)	(134)	-	(3,777)	90
Other recognised gains/(losses):							
Gains/(Losses) on revaluation of fixed assets		-	258	-	-	258	84
Actuarial gains/(losses) on defined benefit pension scheme		252	-	-	-	252	(181)
NET MOVEMENT IN FUNDS		(1,077)	(2,056)	(134)	-	(3,267)	(7)
Reconciliation of funds							
Total funds brought forward		4,114	13,634	2,290	33	20,071	20,078
TOTAL FUNDS CARRIED FORWARD		3,037	11,578	2,156	33	16,804	20,071

Consolidated and charity balance sheets as at 31 December 2018

	Notes	Group		Institute	
		2018 £'000	2017 £'000	2018 £'000	2017 £'000
FIXED ASSETS					
Intangible assets	9	146	196	129	180
Tangible assets	10	11,393	13,946	11,393	13,946
Heritage assets	11	456	-	456	-
Investments	12	8,511	9,620	8,511	9,620
Total fixed assets		20,506	23,762	20,489	23,746
CURRENT ASSETS					
Stock and work in progress	14	159	67	13	2
Debtors	15	568	336	169	152
Cash at bank and in hand		69	126	2	2
		796	529	184	156
CREDITORS: Amounts falling due within one year	16	(1,587)	(1,306)	(1,320)	(1,280)
NET CURRENT (LIABILITIES)		(791)	(777)	(1,136)	(1,124)
NET ASSETS EXCLUDING PENSION LIABILITY		19,715	22,985	19,353	22,622
Defined benefit pension scheme liability	22.3	(2,911)	(2,914)	(2,911)	(2,914)
TOTAL NET ASSETS	17	16,804	20,071	16,442	19,708
THE FUNDS OF THE CHARITY					
ENDOWMENT FUNDS	18	33	33	33	33
RESTRICTED INCOME FUNDS					
Restricted funds	19	2,156	2,290	2,156	2,290
UNRESTRICTED FUNDS					
General funds		3,037	4,114	2,675	3,751
Designated funds	20	10,963	13,277	10,963	13,277
Revaluation reserve	20	615	357	615	357
TOTAL CHARITY FUNDS		16,804	20,071	16,442	19,708

The financial statements on pages 41 to 70 were approved and authorised for issue by the trustees and signed on their behalf by:

Mr M C Cox, Trustee and President 2017–18 on 3 June 2019



Dr M J May, Honorary Treasurer on 6 June 2019



Consolidated and charity statement of cash flows for the year ended 31 December 2018

	<i>Group</i>		<i>Institute</i>	
	<i>2018</i> <i>£'000</i>	<i>2017</i> <i>£'000</i>	<i>2018</i> <i>£'000</i>	<i>2017</i> <i>£'000</i>
Cash flows from operating activities:				
Net cash used in operating activities	(594)	(689)	(541)	(442)
Cash flows from investing activities:				
Dividends, interest and rents from investments	302	295	302	295
Purchase of intangibles	(33)	(3)	(29)	-
Purchase of property, plant and equipment	(37)	(19)	(37)	(19)
Proceeds from sale of investments	323	154	323	154
Purchase of investments	(123)	(154)	(123)	(154)
Net cash used in investing activities	(162)	(371)	(105)	(121)
Change in cash and cash equivalents in the reporting period	(162)	(371)	(105)	(121)
Cash and cash equivalents at the beginning of the reporting period	81	497	(43)	123
Cash and cash equivalents at the end of the reporting period.	(81)	81	(148)	(43)

T1 Reconciliation of net income/(expenditure) to net cash flow from operating activities

Net income/(expenditure) for the reporting period (as per the statement of financial activities)	(3,777)	90	(3,776)	89
Adjustments for:				
Depreciation and amortisation charges and impairment of fixed assets	2,475	258	2,472	255
Losses/(gains) on investments	909	(661)	909	(661)
Pension costs	249	116	249	116
Dividends, interest and rents from investments	(302)	(295)	(302)	(295)
(Increase)/decrease in stocks	(92)	(16)	(11)	1
(Increase)/decrease in debtors	(232)	241	(17)	36
Increase/(decrease) in creditors	176	(423)	(65)	17
Net cash (used in) operating activities	(594)	(689)	(541)	(442)

T2 Analysis of cash and cash equivalents

Cash in hand	69	126	2	2
Bank overdraft	(150)	(45)	(150)	(45)
Total cash and cash equivalents	(81)	81	(148)	(43)

Accounting Policies

Basis of financial statements

The Institute of Materials, Minerals and Mining (“the Charity”) is an unincorporated charity domiciled in England. The address of the Charity’s registered office and principal place of business is 297 Euston Road, London NW1 3AD.

The Charity’s principal activities and the nature of the Charity’s operations are described in the Trustees’ Report on page 36.

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) (effective 1 January 2015) – (Charities SORP (FRS 102)), the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102) and the Charities Act 2011.

The financial statements have been prepared to give a ‘true and fair’ view and have departed from the Charities (Accounts and Reports) Regulations 2008 only to the extent required to provide a ‘true and fair’ view. This departure has involved following Accounting and Reporting by Charities preparing these accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (the Charities SORP (FRS 102) effective 1 January 2015) rather than the Accounting and Reporting by Charities: Statement of Recommended Practice effective from 1 April 2005, which has since been withdrawn.

The Institute of Materials, Minerals and Mining meets the definition of a public benefit entity under FRS 102. Assets and liabilities are initially recognised at historic cost or transaction value unless otherwise stated in the relevant accounting policy notes.

The financial statements are prepared in sterling, which is the functional currency of the Charity. Monetary amounts in these financial statements are rounded to the nearest £1,000.

Preparation of the accounts on a going concern basis

The Council members confirm that at the time of approving the financial statements, there is a reasonable expectation that the Institute has adequate resources to continue in operational existence for the foreseeable future. In arriving at this conclusion the Council members have taken account of current and anticipated financial performance in the current economic conditions, and the Institute’s reserves position. For this reason, the going concern basis continues to be adopted in the preparation of the Institutes financial statements.

Group financial statements

The financial statements consolidate the results of the wholly owned subsidiary companies and companies over which the Institute exercises dominant influence on a line-by-line basis. The members’ benevolent funds are not consolidated because they are under independent control.

Details of the Institute’s total incoming resources and net movement in funds are shown in the notes.

Income

Income is recognised when the charity has entitlements to the funds, any performance conditions attached to the items of income have been met, it is probable that the income will be received and the amount can be measured reliably.

Subscription income represents the amount received in respect of current and past years. Amounts received in advance are carried forward to the following year and subscriptions in arrears have not been anticipated.

Income from conferences represents the amount receivable in respect of the current year. Amounts received in respect of conferences to be run in future years are carried forward to the following year.

Incoming resources from grants, where related to performance and specific deliverables, are accounted for as the charity earns the right to consideration by its performance.

Other income is recognised where there is entitlement, probability of receipt and the amount can be measured with sufficient reliability.

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.

All expenditure is accounted for on an accruals basis and has been classified under headings that aggregate all costs related to the category. Where costs cannot be clearly attributed to particular headings they have been allocated to activities on a basis consistent with the use of the resources. Overheads have been allocated on the basis of head count.

Grants and prizes are awarded annually, mainly to affiliated societies and individuals.

Allocation of support costs

Support costs comprise employment, establishment and administration costs in support of the charitable activities of the Institute. Allocations of these costs are made to the various activities of the Institute using standard rates based on staff time involved on each activity and facility usage. The basis on which support costs are allocated is set out in note 7.

Donated services and materials

Where services are provided to the Institute as a donation that would normally be purchased from suppliers, this contribution is included in the financial statements at an estimate based on the value of the contribution to the Institute.

Heritage Assets

A description of heritage assets held by the Charity is given in note 11. These assets were valued in February 2019 and details are given in note 11.

The heritage assets have been recognised in the Institute's balance sheet at 31 December 2018 at this valuation and will be subsequently held at valuation, reviewed annually for any indications of impairment.

Tangible fixed assets depreciation and amortisation

Individual fixed assets are capitalised where the purchase price exceeds £1,500.

Depreciation is calculated by reference to the cost of fixed assets using the straight line method at rates considered appropriate having regard to their expected useful lives.

The bases used are:

Freehold Property	2% p.a.
Leasehold property	over the term of the lease
Furniture	15%-20% p.a.
Equipment	20%-33% p.a.

Impairment reviews are carried out where there is an indication that the recoverable amount of a fixed asset is below its net book value. Any such impairments are charged through the statement of financial activities in the year in which the impairment occurs.

Freehold property is accounted for using the revaluation method with the building element depreciated at a rate of 2% per annum and revalued to its market value at the end of the financial year. The net value of gains on revaluation are held in the revaluation reserve.

Both of the Institute's freehold properties were revalued at their present market value at the beginning of 2019. The trustees chose to recognise revaluation losses in the 2018 Statement of Financial Activities (see details in note 10).

Intangible fixed assets

Intangible fixed assets, including patents and software, are amortised at rates calculated to write off the assets on a straight line basis over their estimated useful economic lives. Where it is not possible to make a reliable estimate of the useful life of an intangible asset, the life shall not exceed five years. Impairment of intangible assets is reviewed where circumstances indicate that the carrying value of an asset may not be fully recoverable.

Investments and investment income

Listed investments are shown at market value at the balance sheet date. Realised and unrealised gains or losses are taken to the fund to which they relate via the SOFA in the year in which they arise. Unlisted investments are held at cost. Income is included together with the tax related credit in the financial statements of the year in which it is receivable. Investment income and any gain or loss on the asset development and service development designated funds is taken to general funds.

Stocks and work in progress

Sundry stocks are valued at cost. Work in progress is valued at cost and includes staff and other overheads.

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 translated at the rate of exchange ruling at the balance sheet date. Transactions in foreign currencies are recorded at an internal rate of exchange ruling at the date of the transaction. All differences are taken to the statement of financial activities.

Cash at bank and in hand

Cash at bank and in hand includes cash and short term highly liquid investments with a short maturity of three months or less from the date of acquisition or opening of the deposit or similar account.

Creditors and provisions

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

Financial instruments

The Institute only has financial assets and financial liabilities of a kind that qualify as basic financial instruments. Basic financial instruments are measured at their settlement value.

Foreign currencies

Assets and liabilities denominated in foreign currencies are translated at the rate of exchange ruling at the balance sheet date. Transactions in foreign currencies are recorded at an internal rate of exchange ruling at the date of the transaction. All differences are taken to the statement of financial activities.

Operating leases

The rentals under operating leases are charged to the statement of financial activities on a straight line basis over the lease term.

Irrecoverable VAT

Irrecoverable VAT incurred in respect of the year is included in the statement of financial activities except for any amounts relating to capital expenditure which are included in the cost of fixed asset additions.

Pension costs

The Institute participates in both a defined benefit scheme and defined contribution schemes.

Under the defined benefit scheme, the Institute makes contributions to The Institute of Materials Pension and Life Assurance Scheme. Pension costs are assessed in accordance with actuarial advice and based on the most recent actuarial valuation of the scheme. The scheme was closed to new entrants during 2002.

The assets of the scheme are held independently from the Institute in separate trustee administered funds. Full actuarial valuations, by a professionally qualified actuary, are obtained at least every three years, and updated to reflect current conditions at the balance sheet date. Fair value is based on the market price information and in the case of quoted securities is the published bid price. The pension scheme assets are measured at fair value. The pension scheme liabilities are measured using the projected unit method and discounted at the current rate of return on a high quality corporate bond that has been rated at AA or equivalent basis of equivalent term and currency. A pension scheme asset is recognised in the balance sheet only to the extent that the surplus may be recovered by reduced future contributions or to the extent that the Council have agreed a refund from the scheme at the balance sheet date. A pension liability is recognised to the extent that the group has a legal obligation to settle the liability.

The actuarial gain or loss arising in the year included under 'other recognised gains or losses'. Contributions are charged to expenditure so as to spread the regular cost of pensions over the expected working lives of the employees in the scheme. Any difference between the cumulative amounts charged and contributions paid is included as an asset or liability on the balance sheet.

The interest element of the defined benefit cost represents the change in present value of scheme obligations relating to the passage of time and is determined by applying a discount rate to the opening present value of the benefit obligation, valuing into account material changes in the obligation during the year. The expected return on plan assets is based on an assessment made at the beginning of the year of long-term market returns on scheme assets adjusted for the effect on the fair value of plan assets of the contributions received and benefits paid during the year. The difference between the expected return on plan assets and the interest costs is recognised in the consolidated SOFA (Statement of Financial Activities) as pension finance income or within resources expenses as appropriate.

Under the defined contribution schemes, the Institute contributes to group personal pension plans providing benefits for some employees. Pension costs are based on current salaries and charged to the statement of financial activities in the year in which they are due.

Critical accounting estimates and assumptions

The Institute makes estimates and assumptions concerning the future. The resulting estimates and assumptions will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are those used by the scheme actuary in calculating the Institute's defined benefit scheme liability (see note 22 for details).

Revaluation of freehold property: the revaluation is based on the building element of freehold properties depreciated at a rate of 2% per annum and revalued to its market value at the end of the financial year.

On 26 October 2018, the High Court ruled that UK Pension schemes need to equalise the benefits for the inequality of Guaranteed Minimum Pensions (GMP) between men and women. The allowance for GMPs has been estimated by the scheme actuary based on the average impact for a sample of scheme members. Further details are given in note 22.

Institute funds and reserves policy

Funds held by the Institute are:

Unrestricted general funds – these are funds that can be used in accordance with the charitable objects at the discretion of the Council. The Institute's policy is to maintain sufficient liquid reserves to cover the future expenditure of charitable and administrative costs for up to one year.

Designated funds – these are funds set aside by Council out of unrestricted general funds for specific future purposes or projects. The revaluation reserve within designated funds represents the value of gains on revaluation of freehold property.

Restricted funds – these are funds that can only be used for particular restricted purposes within the objects of the Institute. Restrictions arise when specified by the donor or when funds are raised for particular restricted purposes.

Permanent endowment fund – the income of the Mining Club is dealt with in a restricted fund that provides grants for travel, study or attendance at international conferences related to the minerals industry.

Further explanation of the nature and purpose of each fund is included in the notes to the financial statements.

Notes to financial statements

1. Consolidated statement of financial activities for the year ended 31 December 2017

	Notes	Unrestricted funds General £'000	Unrestricted funds Designated £'000	Restricted funds £'000	Permanent endowment £'000	Total funds 2017 £'000	Total funds 2016 £'000
INCOME AND ENDOWMENTS FROM:							
Donations and legacies	4	-	-	12	-	12	-
Charitable activities							
Membership and related activities		1,507	-	-	-	1,507	1,459
Charitable trading activities	3	2,041	-	-	-	2,041	1,618
Other trading activities	5	309	-	-	-	309	180
Investments	6	239	2	54	-	295	285
Total income		4,096	2	66	-	4,164	3,542
EXPENDITURE ON:							
Raising funds	5	289	-	-	-	289	161
Charitable activities							
Membership and related activities		2,938	32	28	-	2,998	3,076
Charitable trading activities	3	1,448	-	-	-	1,448	1,290
Other		-	-	-	-	-	6
Total expenditure	7	4,675	32	28	-	4,735	4,533
Net gains on investments		553	6	102	-	661	886
Net income/(expenditure)		(26)	(24)	140	-	90	(105)
Other recognised gains/(losses):							
Gains on revaluation of fixed assets		-	84	-	-	84	84
Actuarial losses on defined benefit pension scheme		(181)	-	-	-	(181)	(513)
NET MOVEMENT IN FUNDS		(207)	60	140	-	(7)	(534)
Reconciliation of funds							
Total funds brought forward		4,321	13,574	2,150	33	20,078	20,612
TOTAL FUNDS CARRIED FORWARD		4,114	13,634	2,290	33	20,071	20,078

2. Charity only statement of financial activities for the year ended 31 December 2018

	<i>Unrestricted funds</i>		<i>Restricted funds</i>	<i>Permanent endowment</i>	<i>Total funds 2018</i>	<i>Total funds 2017</i>
	<i>General</i>	<i>Designated</i>				
	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>
INCOME AND ENDOWMENTS FROM:						
Donations and legacies	565	-	-	-	565	622
Charitable activities						
Membership and related activities	1,458	-	-	-	1,458	1,457
Investments	240	3	59	-	302	295
Total income	2,263	3	59	-	2,325	2,374
EXPENDITURE ON:						
Charitable activities						
Membership and related activities	2,852	2,308	32	-	5,192	2,946
Total expenditure	2,852	2,308	32	-	5,192	2,946
Net gains/(losses) on investments	(739)	(9)	(161)	-	(909)	661
Net income/(expenditure)	(1,328)	(2,314)	(134)	-	(3,776)	89
Transfers between funds	-	-	-	-	-	-
Other recognised (losses)/gains:						
Losses/Gains on revaluation of fixed assets	-	258	-	-	258	84
Actuarial losses on defined benefit pension scheme	252	-	-	-	252	(181)
NET MOVEMENT IN FUNDS	(1,076)	(2,056)	(134)	-	(3,266)	(8)
Reconciliation of funds						
Total funds brought forward	3,751	13,634	2,290	33	19,708	19,716
TOTAL FUNDS CARRIED FORWARD	2,675	11,578	2,156	33	16,442	19,708

3. Charitable trading activities

	2018 £'000	2017 £'000
TURNOVER		
Publishing	1,657	1,506
Conferences and exhibitions	481	653
Information services	88	111
Technology improvement awards	73	39
Training services	242	286
	2,541	2,595
Internal contribution for costs included in sales	(554)	(554)
Incoming resources	1,987	2,041
COST OF CHARITABLE TRADING ACTIVITIES		
Publishing	618	664
Conferences and exhibitions	531	565
Information services	432	417
Technology improvement awards	125	88
Training services	270	268
	1,976	2,002
Internal contribution to sales	(554)	(554)
	1,422	1,448
NET CONTRIBUTION FROM CHARITABLE TRADING ACTIVITIES		
Publishing	1,039	842
Conferences and exhibitions	(50)	88
Information services	(344)	(306)
Technology improvement awards	(52)	(49)
Training services	(28)	18
	565	593

4. Donations and legacies

	2018 £'000	2017 £'000
Donations for medal funds	-	12
	-	12

5. Other trading activities

The Institute has a policy to generate income from its property facilities when not required for its own purpose. Related expenditure includes direct costs, employment costs and relevant overheads. These activities are undertaken by Materials Institute Services Ltd (see note 13: Subsidiary undertakings).

6. Investment income

	2018		2017	
	<i>Unrestricted</i> £'000	<i>Restricted</i> £'000	<i>Unrestricted</i> £'000	<i>Restricted</i> £'000
Listed securities				
Fixed interest	77	27	88	26
UK equities	154	31	143	27
Overseas equities	11	-	10	-
Cash and cash equivalents	1	1	-	1
	243	59	241	54

7. Total resources expended

Summary

	2018 £'000	2018 £'000	2017 £'000	2017 £'000
Direct charitable costs		1,280		1,539
Employment costs				
Salaries	1,786		1,757	
Social security costs	190		189	
Pension costs	368		228	
Temporary and other staff costs	125		85	
Redundancy costs	-		32	
		2,469		2,291
Establishment costs				
Property costs	272		271	
Information technology	116		122	
Depreciation and amortisation	164		255	
Impairment of fixed assets	2,308		-	
		2,860		648
Administration costs				
Travel, meeting and committee expenses	96		67	
Postage and telecommunications	66		77	
Printing and stationery	36		24	
Finance costs	11		25	
Professional fees	51		57	
Office and other costs	6		7	
		266		257
		6,875		4,735

Breakdown of costs of activities

	Direct costs £'000	Support costs £'000	2018 Total £'000	2017 Total £'000
Charitable activities				
Membership and related services	512	4,160	4,672	2,998
Charitable trading activities	683	1,293	1,976	1,448
	1,195	5,453	6,648	4,446
Costs of raising funds				
Activities for raising funds	85	142	227	289
	1,280	5,595	6,875	4,735

Support cost breakdown by activity

	<i>Employment costs £'000</i>	<i>Establishment costs £'000</i>	<i>Admin costs £'000</i>	<i>2018 Total £'000</i>	<i>2017 Total £'000</i>
Membership and related services	1,436	2,586	138	4,160	1,828
Charitable trading activities	940	235	118	1,293	1,161
Activities for raising funds	93	39	10	142	207
	2,469	2,860	266	5,595	3,196

Employment costs are allocated to activities based on the cost of the estimated time spent on those activities.

Establishment and administration costs are apportioned to activities on the basis of employment costs.

Admin costs include governance, finance, HR, IT and sales and marketing costs, which are apportioned to activities on the basis of employment costs.

Employee information

	<i>2018 No.</i>	<i>2017 No.</i>
The average number/(full time equivalent) employees during the year was	50 (47)	52 (48)
The number of employees who earned more than £60,000 per annum including benefits was:		
£60,001 - £70,000	2	2
£70,001 - £80,000	-	1
£160,001 - £170,000	-	1
£170,001 - £180,000	1	-
The number of employees who earned more than £60,000 per annum and accrued benefits in the Institute's pension scheme was:		
Defined benefit scheme	1	1
Money purchase scheme	2	3

	<i>2018 £'000</i>	<i>2017 £'000</i>
Total remuneration of key management personnel, including benefits during the year was	531	560
Total employer National Insurance contributions paid on the key management personnel remuneration	60	60
Total amount of redundancy payments made during the year was	-	32
Contributions to the pension funds during the year were:		
Defined benefit scheme	53	54
Money purchase scheme	58	53

The key management personnel of the charity are detailed on page 39.

Total expenditure includes

	2018 £'000	2017 £'000
Auditor's remuneration		
Audit fee – current year	35	33
Accountancy, taxation and other services	6	5
Travel expenses paid to 26 (2017: 35) Council Members for attending Council and other meetings	38	34
Travel expenses paid on behalf of 18 (2017: 3) Council Members for attending Council and other meetings	5	3
Operating lease charges	42	41

None of the Council members received any remuneration in either year.

	2018 £'000		2017 £'000	
The total future minimum lease payments under non-cancellable operating leases	Land and buildings	Other	Land and buildings	Other
Within one year	35	6	35	6
Within two to five years	116	16	124	22
After five years	120	-	147	-

Other transactions with trustees

Mr I Davis provided training services during the year to the Institute's subsidiary, IOM Communications Ltd. The value of these services during the year was £7,979 (2017 - £7,559) including VAT.

No other members of the Council directly or indirectly received any remuneration during the years ended 31 December 2018 and 2017.

8. Transfers between funds

There were no transfers between funds during 2018 or 2017.

9. Intangible fixed assets

	<i>Group and parent</i>	<i>Group only</i>	<i>Total</i>
	<i>Website and software</i>	<i>Patent costs</i>	<i>£'000</i>
	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>
Cost			
1 January 2018	403	26	429
Additions in the year	29	4	33
31 December 2018	432	30	462
Amortisation			
1 January 2018	223	10	233
Charge for the year	80	3	83
31 December 2018	303	13	316
Net book value			
31 December 2018	129	17	146
31 December 2017	180	16	196

10. Tangible fixed assets

	<i>Freehold property</i>	<i>Short leasehold property</i>	<i>Furniture, fittings & equipment</i>	<i>Total</i>
	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>
GROUP AND PARENT				
Cost or valuation				
1 January 2018	13,476	2,219	832	16,527
Additions in the year	-	2	35	37
31 December 2018	13,476	2,221	867	16,564
Depreciation				
1 January 2018	-	1,960	621	2,581
Provided during the year	-	25	59	84
Impairment	2,506	-	-	2,506
31 December 2018	2,506	1,985	680	5,171
Net book value				
31 December 2018	10,970	236	187	11,393
31 December 2017	13,476	259	211	13,946

10. Tangible fixed assets (continued)

The Institute's freehold land and buildings are accounted for using the valuation method. Both of the Institute's freehold properties were revalued at their present market value at the beginning of 2019. The London property was revalued at its present market value of £10.7m by Neil Burch MRICS on 31 March 2019. The Stoke property was revalued at its present market value of £270k by Nick Deavall MRICS

on 1 April 2019. As no significant events occurred between 31 December 2018 and 1 April 2019 that would have materially impacted on the market value of either of the properties, trustees chose to recognise revaluation losses in the 2018 Statement of Financial Activities, in line with guidance provided by Charities SORP and FRS102. The next formal valuation of freehold properties is due to take place in 2024.

11. Heritage assets

In addition to the assets outlined in note 10, the Institute owns a collection of paintings and artefacts of historic and scientific importance which is deemed to be heritage assets as defined under SORP (FRS 102). The collection comprises portraits, paintings, artefacts and sculptures, which the Institute has commissioned, acquired or received as a donation to either enhance the fabric of its building or to celebrate its history in science, engineering and technology.

The Institute maintains a comprehensive register of these assets. The Institute's heritage assets were valued in February 2019 by Penny Bingham (MRICS), an independent Fine Art

Valuer, at a combined value of £287k. Separately, the Institute's Mining Lamp collection was valued in May 2016 by David Rimmer of the Miners Lamp Society at a combined value of £169k.

Both independent valuers consider that the resale value of individual heritage assets is very sensitive to the number of potential purchasers with the ability and willingness to pay.

The heritage assets have been recognised in the Institute's balance sheet at 31 December 2018 at valuation and will be subsequently held at valuation subject to annual review for indications of any impairment.

12. Investments

	<i>Group</i>		<i>Institute</i>	
	<i>2018</i>	<i>2017</i>	<i>2018</i>	<i>2017</i>
	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>	<i>£'000</i>
Analysis of movements in the year				
Market value at 1 January	9,620	8,958	9,620	8,958
Additions at cost	123	154	123	154
Disposals at opening market value	(323)	(145)	(323)	(145)
Revaluations	(909)	653	(909)	653
Market value at 31 December	8,511	9,620	8,511	9,620
At the balance sheet date, the portfolio was invested as follows				
<i>Listed investments</i>				
Fixed interest	2,423	2,562	2,423	2,562
UK equities	5,596	6,526	5,596	6,526
Overseas equities	334	374	334	374
<i>Unlisted investments</i>				
Cash and cash equivalents	158	158	158	158
Subsidiary undertakings (note 13)	-	-	-	-
Market value at 31 December	8,511	9,620	8,511	9,620
At the balance sheet date, the following investments represent more than 5% of the portfolio by market value				
Charinco (UK fixed interest common investment fund)	2,443	2,413	2,443	2,413
Charishare (UK equities common investment fund)	3,174	3,287	3,174	3,287
Historical cost at 31 December	5,617	5,700	5,617	5,700

13. Subsidiary undertakings

The Institute has four subsidiary organisations:

- IOM Communications Ltd (company number 3285009, charity number 1059475), a charitable trading company limited by shares.
- The Institute of Packaging (company number 786826, charity number 295762), a company limited by guarantee.
- Materials Institute Services Ltd (company number 2882544), a company limited by shares.
- PIABC Ltd (company number 10371273) a company limited by shares.

All subsidiary companies are incorporated in the UK and file accounts with the Registrar of Companies. The accounts of IOM Communications Ltd, Materials Institute Services Ltd and PIABC Ltd are audited. IOM Communications Ltd and

Materials Institute Services Ltd and PIABC Ltd are wholly owned subsidiaries. The Institute holds 100 shares of £1 each in IOM Communications Ltd and one share of £1 in PIABC Ltd. IOM Communications Ltd holds 2 shares of £1 each in Materials Institute Services Ltd.

IOM Communications Ltd undertakes the charitable trading activities of the Institute of Materials, Minerals and Mining. Materials Institute Services Ltd undertakes income generating activities of the Institute of Materials, Minerals and Mining. PIABC Ltd undertakes membership related activities on behalf of the Institute of Materials, Minerals and Mining. The Institute of Packaging did not trade during 2018 or 2017.

Summaries of the 2018 results and balance sheets of IOM Communications Ltd, Materials Institute Services Ltd and PIABC Ltd together with comparative figures for 2017, where applicable, are shown below.

IOM Communications Limited

	2018 <i>Total</i> £'000	2017 <i>Total</i> £'000
Results		
Charitable trading activities	2,541	2,595
Total incoming resources	2,541	2,595
Charitable trading costs	1,976	2,002
Donation to the Institute	565	593
Total outgoing resources	2,541	2,595
Net incoming resources	-	-
Balances brought forward	341	341
Balances carried forward	341	341
Balance sheets at 31 December		
Fixed assets	17	16
Current assets	935	837
Creditors: amounts falling due within one year	(611)	(512)
Net current assets	341	341
Shareholders' funds	341	341

13. Subsidiary undertakings (continued)

Materials Institute Services Limited

	<i>2018</i>	<i>2017</i>
	<i>Total</i>	<i>Total</i>
	<i>£'000</i>	<i>£'000</i>
Results		
Turnover	227	309
Total incoming resources	227	309
Costs	227	290
Donation to the Institute	-	17
Total outgoing resources	227	307
Net incoming resources	-	2
Balances brought forward	24	22
Balances carried forward	24	24
Balance sheets at 31 December		
Current assets	77	38
Creditors: amounts falling due within one year	(53)	(14)
Net current assets	24	24
Shareholders' funds	24	24

PIABC Limited

	<i>Year ended</i>	<i>Period ended</i>
	<i>31 Dec 2018</i>	<i>31 Dec 2017</i>
	<i>Total £'000</i>	<i>Total £'000</i>
Results		
Turnover	34	88
Total incoming resources	34	88
Costs	34	87
Total outgoing resources	34	87
Net incoming resources	-	1
Balances brought forward	1	-
Balances carried forward	1	1
Balance sheets at 31 December		
Current assets	1	1
Creditors: amounts falling due within one year	-	-
Net current assets	1	1
Shareholders' funds	1	1

The net assets of The Institute of Packaging at 31 December 2017 and 2018 were £nil.

14. Stock and work in progress

	<i>Consolidated</i>		<i>Institute</i>	
	<i>2018</i> £'000	<i>2017</i> £'000	<i>2018</i> £'000	<i>2017</i> £'000
Work in progress	157	64	11	-
Sundry stocks	2	3	2	2
	159	67	13	2

15. Debtors

Trade debtors	384	130	10	8
Other debtors	11	8	13	10
Prepayments and accrued income	173	198	146	134
	568	336	169	152

16. Creditors: Amounts falling due within one year

Trade creditors	476	224	194	181
Taxes and social security costs	62	53	64	53
Subscriptions and orders paid in advance	618	677	347	337
Other creditors and accruals	281	307	171	166
Amounts due to subsidiary companies	-	-	394	498
Bank overdraft	150	45	150	45
	1,587	1,306	1,320	1,280

Subscriptions and orders paid in advance

At 1 January	677	840	337	319
Recognised in year	(579)	(726)	(330)	(311)
Provided for in year	520	563	340	329
At 31 December	618	677	347	337

17. Analysis of net assets between funds

At 31 December 2018

Group	Unrestricted funds		Restricted	Permanent	Total
	General £'000	Designated £'000	funds £'000	Endowment fund £'000	funds £'000
Intangible assets	146	-	-	-	146
Tangible fixed assets	554	10,839	-	-	11,393
Heritage assets	-	456	-	-	456
Investments	6,682	72	1,724	33	8,511
Current assets	153	211	432	-	796
Current liabilities	(1,587)	-	-	-	(1,587)
Net assets before pension liability	5,948	11,578	2,156	33	19,715
Pension liability	(2,911)	-	-	-	(2,911)
Total net assets	3,037	11,578	2,156	33	16,804

Institute	Unrestricted funds		Restricted	Permanent	Total
	General £'000	Designated £'000	funds £'000	Endowment fund £'000	funds £'000
Intangible fixed assets	129	-	-	-	129
Tangible fixed assets	554	10,839	-	-	11,393
Heritage assets	-	456	-	-	456
Investments	6,682	72	1,724	33	8,511
Current assets	(459)	211	432	-	184
Current liabilities	(1,320)	-	-	-	(1,320)
Net assets before pension liability	5,586	11,578	2,156	33	19,353
Pension liability	(2,911)	-	-	-	(2,911)
Total net assets	2,675	11,578	2,156	33	16,442

17. Analysis of net assets between funds

At 31 December 2017

Group	Unrestricted funds		Restricted	Permanent	Total
	General £'000	Designated £'000	funds £'000	Endowment fund £'000	funds £'000
Intangible assets	196	-	-	-	196
Tangible fixed assets	601	13,345	-	-	13,946
Investments	7,653	82	1,852	33	9,620
Current assets	(116)	207	438	-	529
Current liabilities	(1,306)	-	-	-	(1,306)
Net assets before pension liability	7,028	13,634	2,290	33	22,985
Pension liability	(2,914)	-	-	-	(2,914)
Total net assets	4,114	13,634	2,290	33	20,071

Institute	Unrestricted funds		Restricted	Permanent	Total
	General £'000	Designated £'000	funds £'000	Endowment fund £'000	funds £'000
Intangible fixed assets	180	-	-	-	180
Tangible fixed assets	601	13,345	-	-	13,946
Investments	7,653	82	1,852	33	9,620
Current assets	(489)	207	438	-	156
Current liabilities	(1,280)	-	-	-	(1,280)
Net assets before pension liability	6,665	13,634	2,290	33	22,622
Pension liability	(2,914)	-	-	-	(2,914)
Total net assets	3,751	13,634	2,290	33	19,708

18. Permanent endowment fund

Group and Institute	Balance at 1 January 2018 £'000	Incoming resources £'000	Resources expended £'000	Investment gains/ (losses) £'000	Transfers between funds £'000	Balance at 31 December 2018 £'000
Mining Club	33	-	-	-	-	33

The income of the Mining Club is dealt with in a restricted fund that provides grants for travel, study or attendance at international conferences related to the minerals industry.

19. Restricted funds

Group and Institute	Balance at 1 January 2018 £'000	Incoming resources £'000	Resources expended £'000	Investment gains/ (losses) £'000	Balance at 31 December 2018 £'000
Stanley Elmore Fellowship	700	17	(10)	(18)	689
Andrew Carnegie Trust Fund	648	18	(9)	(62)	595
Bosworth Smith Trust	281	7	(2)	(27)	259
Tom Seaman Travelling Scholarship	278	8	(5)	(27)	254
Metals & Metallurgy Trust Fund	112	4	(1)	(10)	105
Edgar Pam Fellowship	113	3	(1)	(10)	105
G Vernon Hobson Bequest	71	2	(3)	(7)	63
Other funds	20	-	-	-	20
Prize funds	67	-	(1)	-	66
	2,290	59	(32)	(161)	2,156

The income of these restricted funds is to be used for the following purposes:

Stanley Elmore Fellowship, Bosworth Smith Trust, Edgar Pam Fellowship and G Vernon Hobson Bequest - to provide grants to assist post-graduate research, together with the unexpended balance of Mining Club income.

Andrew Carnegie Trust Fund – to support the award of scholarships and awards in the field of materials.

Tom Seaman Travelling Scholarship Fund is for the purpose of awarding scholarships to persons who are engaged in or associated with the coal mining industry.

The Metals & Metallurgy Trust Fund – to support the award or grants, scholarships and prizes in the field of metals and metallurgy.

Other funds include:

- A G Charleton Fund – to award prizes to deserving students at the Imperial College of Science Technology and Medicine.
- Centenary Student Sponsorship Fund – to provide membership benefits of the Institute to students.
- Dixie Dean Bursary Fund – to provide bursaries for foreign students associated with the packaging industry.

Prize funds include the R T Holland Fund, Dennis Chapman Medal Award, Frank Fitzgerald Medal and other funds set up for the award of medals or money to appropriate recipients.

Further information about scholarships, bursaries, professional and travel grants including details of case studies are shown on our website www.iom3.org/scholarships-grants-and-bursaries.

20. Designated funds

	<i>Balance at</i> <i>1 January</i> <i>2018</i> <i>£'000</i>	<i>Incoming</i> <i>resources</i> <i>£'000</i>	<i>Resources</i> <i>expended</i> <i>£'000</i>	<i>Gains/</i> <i>(losses)</i> <i>£'000</i>	<i>Balance</i> <i>at 31</i> <i>December</i> <i>2018</i> <i>£'000</i>
Asset development fund	12,988	-	(2,308)	-	10,680
Revaluation reserve	357	-	-	258	615
Services development fund	57	-	-	-	57
Sir Julius Wernher Memorial Fund	141	3	-	(9)	135
Packaging education fund	50	-	-	-	50
Materials education	24	-	-	-	24
Robert A Moore Fund	17	-	-	-	17
	13,634	3	(2,308)	249	11,578

The designated funds have been set up for the following purposes:

- Asset development fund – representing selected amounts (at cost or market value less depreciation) invested in freehold and leasehold properties, furniture, equipment and computers used for the functional purposes of the Institute and amounts set aside to meet future capital requirements as deemed appropriate by the trustees.
- Services development fund – representing amounts designated by Council to develop and improve the quality of services provided by the Institute.
- Sir Julius Wernher Memorial Fund – representing amounts designated to provide for memorial lectures.
- Packaging education fund – representing amounts set aside to promote and develop packaging education.
- Materials education fund – representing income generated for and costs relating to the promotion of materials education in schools.
- Robert A Moore Fund – representing amounts designated to promote the aims of the Institute in the name of Robert A Moore.

21. Cumulative unrealised investment gains

	<i>Consolidated</i>		<i>Institute</i>	
	<i>2018</i> <i>£'000</i>	<i>2017</i> <i>£'000</i>	<i>2018</i> <i>£'000</i>	<i>2017</i> <i>£'000</i>
General fund	1,989	2,847	1,989	2,847
Designated funds	13	21	13	21
	2,002	2,868	2,002	2,868
Restricted funds	398	560	398	560
	2,400	3,428	2,400	3,428

22. Pension schemes

22.1 Introduction

The Institute operates a funded defined benefit occupational pension scheme. The assets of the scheme are held separately from those of the Institute and are invested in an insured fund administered by the Prudential Assurance Company Limited and the Newton Exempt Fund administered by Mellon Fund Managers Limited. Under the terms of the Trust Deeds, the scheme is administered by the Trustees.

The scheme was closed to new members during 2002 and new employees are given the opportunity to join the group

personal pension arrangements with Royal London. The group personal pension plan is a defined contribution benefit scheme and complies with the stakeholder legislation.

At the year end, the scheme had eight current staff members and 81 deferred members.

Results of the most recent triennial actuarial valuations, at 1 January 2010, 2013 and 2016 showed the following results.

	<i>2010</i> £'000	<i>2013</i> £'000	<i>2016</i> £'000
Market value of the scheme's assets	6,404	7,361	13,970
Liability for projected accrued benefits	(6,925)	(9,201)	(15,593)
(Deficit)	(521)	(1,840)	(1,623)

Arrangements have been made for the deficit shown by the actuarial valuation at 1 January 2016 to be funded at the rate of:

- £42k by 31 December 2017. This was paid in a lump sum in March 2017.
- £33k payable during 2019.
- £67k p.a. increasing at 3.4% p.a. payable in equal monthly instalments from 1 January 2020 to 31 December 2031.

22.2 Principal actuarial assumptions

A valuation of the defined benefit pension scheme assets and liabilities at 31 December 2018 under FRS102 has been carried out by a qualified independent actuary. The projected unit valuation method has been used. The major financial assumptions used by the actuary were:

Years ended	2018 % p.a.	2017 % p.a.
Discount rate	2.80	2.60
Price inflation – pre-retirement (RPI)	3.10	3.10
Consumer Prices Inflation – pre-retirement (CPI)	2.10	2.10
Future salary increases	1.50	1.50
Rate of increases of pensions in payment (RPI)	3.00	3.00
Rates of increases of pensions in payment – (CPI)	1.80	1.80
Rate of increase for deferred pensioners	2.10	2.10

The following demographic assumptions were used in the valuation:

	Year ended 31/12/2018		Year ended 31/12/2017	
	Males	Females	Males	Females
Mortality pre-retirement	As for post retirement		As for post retirement	
Mortality post-retirement	S2PMA CMI 2017 1%		S2PMA CMI 2016 1%	
Life expectancy for a current 65 year old in 2018	86.8 years	88.7 years	86.9 years	88.7 years
Life expectancy at age 65 for an individual aged 45 in 2018	87.8 years	89.9 years	88.0 years	90.0 years

22.3 Amounts recognised in the balance sheet for defined benefit scheme

	2018 £'000	2017 £'000
Present value of defined benefit obligation	(16,099)	(16,542)
Fair value of scheme assets	13,188	13,628
Pension scheme liability recognised in the balance sheet	<u>(2,911)</u>	<u>(2,914)</u>

22.4 Changes in present value of defined benefit obligation

	2018 £'000	2017 £'000
Defined benefit obligation at 1 January	(16,542)	(16,188)
Service cost	(145)	(62)
Interest cost	(424)	(448)
Member contributions	(30)	(32)
Benefits paid	537	482
Actuarial gains/(losses)	505	(294)
Defined benefit obligation at 31 December	<u>(16,099)</u>	<u>(16,542)</u>

22.5 Changes in fair value of scheme assets

	2018 £'000	2017 £'000
Plan assets at 1 January	13,628	13,572
Return on plan assets (excluding net interest on defined benefit obligations)	(253)	113
Interest income	347	374
Employer contributions	53	98
Expenses (paid by the Fund)	(80)	(79)
Member contributions	30	32
Benefits paid	(537)	(482)
Plan assets at 31 December	<u>13,188</u>	<u>13,628</u>

22.6 Major categories of scheme assets

	%	%
Equities	22	33
Corporate bonds	12	12
Gilts	18	12
Properties	2	1
Cash	6	5
Annuities	30	31
Other assets	10	6
Total scheme assets	<u>100</u>	<u>100</u>

22.7 Amounts recognised in the statement of financial activities

Amounts recognised in net incoming resources are as follows:

	2018 £'000	2017 £'000
Current service cost	68	62
Past service cost	77	-
Expenses paid by the scheme	80	79
Net interest cost	77	74
Net charge	302	215

The actual return on scheme assets was a gain of £94k (2017: £487k)

The Institute expects to contribute £63k to its defined benefit pension scheme in 2019.

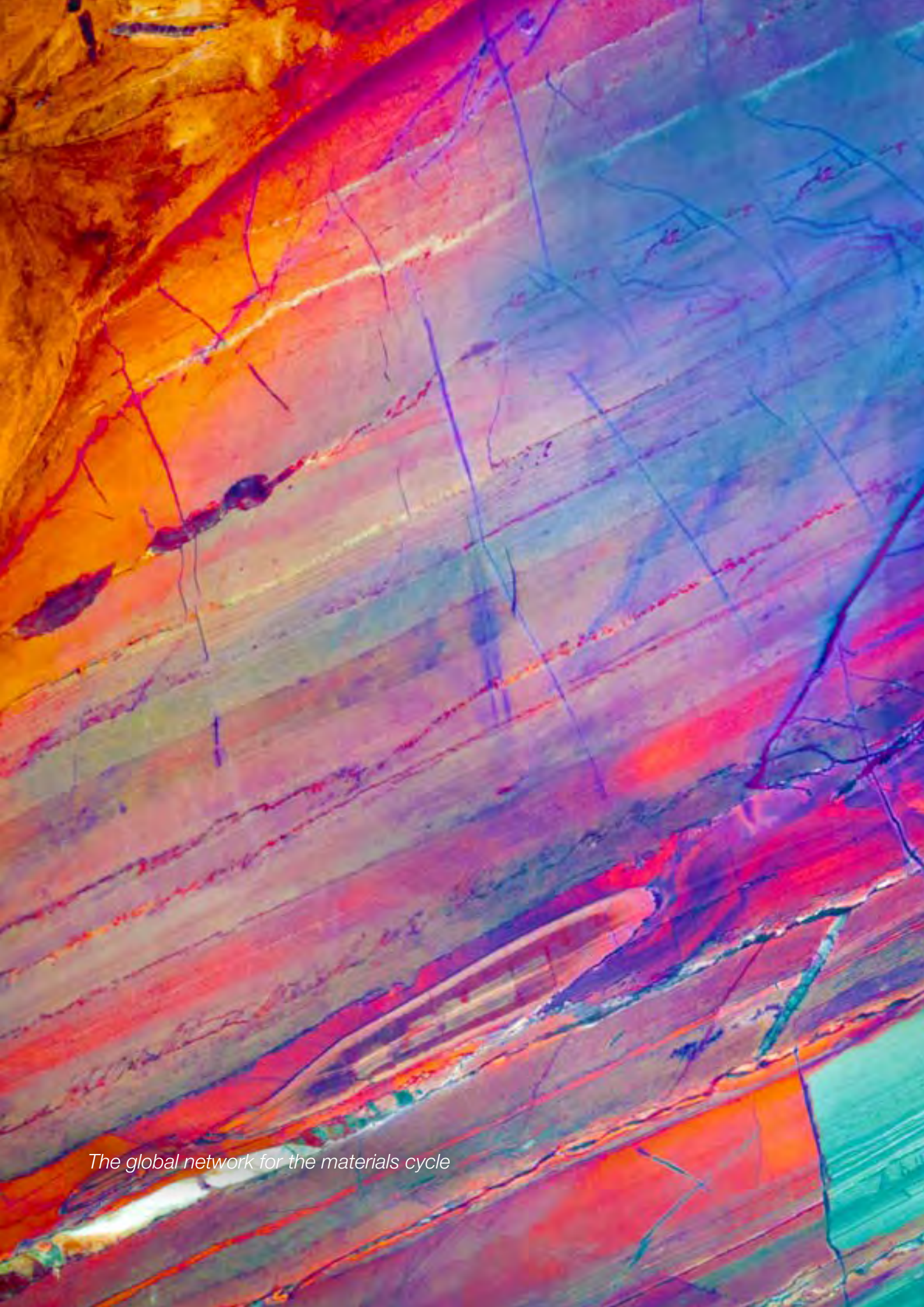
On 26 October 2018, the High court ruled that UK Pension schemes need to equalise the benefits for the inequality of Guaranteed Minimum Pensions (GMP) between men and women. The allowance for GMPs has been estimated based on the average impact for a sample of scheme members and this increase in the defined benefit obligation is shown as a past service cost. The assumptions used have yet to be agreed with the Trustees however the estimated GMP equalisation impact for the Institute's defined benefit scheme is an increase of 0.4% of the total value of scheme liabilities as at 31 December 2018, being £77k.

The actuarial gains recognised in the statement of financial activities for 2018 were £252k and the cumulative net losses recognised from 2002 to 2018 amounted to £2,857k.

22.8 Outstanding pension contributions at the year end

Contributions for the defined benefit scheme amounting to £7k (2017 - £7k) were outstanding at the year-end. Contributions for the defined contributions schemes amounting to £10k (2017 - £6k) were outstanding at the year-end.





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