Institute of Materials, Minerals & Mining

The global network for the materials cycle.

2023 END OF YEAR REVIEW

Dr Colin Church FIMMM CEnv CRWM MCIWM IOM3 Chief Executive

It has been another busy year for IOM3 as we work to advance and develop all aspects of materials, minerals, and mining. With the support of our members, we continue to support professionals in those fields be champions of the transition to a low-carbon, resilient and resource-efficient society. 2023 has also been a year where IOM3 has been able to maintain its return to financial health, with a fourth consecutive year of operational surplus.

Despite the sad and unexpected loss of our friend and colleague EUR ING Ian Bowbrick in the middle of the year, membership recruitment has continued to be a positive story for us. For the second year in a row, we have recruited over 2,000 new members. We have also hit our targets for professional registrations such as Chartered Engineer, Environmentalist and Scientist as well as for Fellows, Associates and Students. The new accreditation of Qualified for Mineral Reporting (QMR), introduced this year, has also been awarded to 73 members who need it to be able to sign off on mineral resource and reserve reporting. And successfully undergoing our five-yearly Licence Reviews with the Society for the Environment and the Engineering Council was another significant achievement for the team.

'The expertise of IOM3 members has never been more important to society and economy, and making sure that expertise is fed into the public and policy debates is a key aim of ours. Our work on influence in 2023 includes significant effort on the topic of critical raw materials.'

We continue to receive really positive feedback about the quality of the technical content members can access through IOM3. Our webinars, in-person events, member magazines, podcasts and news items, so many of which are only possible because of our members' willingness to share their knowledge, are great ways of making sure you are informed about latest developments in your field and others that might be of interest.

Of course, big news this year was the decision of IOM3 to move its scholarly journals publication partnership from Taylor & Francis to Sage Publications from the end of 2023. The transition is almost finished as I write this and we look forward to developing the relationship with Sage over the next five years. Members will continue to have free access not only to the suite of IOM3 journals, but also to other Sage-published journals in our fields. As now, from January you will be able to access these via your MyIOM3 account on our website.

Some of this year's content highlights are:

25 webinars, 5 hybrid in-person/online events, and
 9 in-person events, with over 4,700 registrations from
 53 different countries

 Hosting several major international conferences, including the IRCO RubberCon 2023 (Edinburgh, May); the World Titanium Conference (Edinburgh, June); and the 11th International Symposium on Ground Freezing (London, October)

 Over a million article downloads across our journals, and five more journals receiving an impact factor for the first time

 17 new 'IOM3 Investigates...' podcast episodes released, with 3,398 plays in 2023

 The nine new technical themes (digital, energy, health, infrastructure, materials & manufacturing, mining, skills, sustainability, transport) that organise our work were implemented across the website, making finding material easier IOM3 has worked hard to extend its offering of professional development options. In 2023, we ran almost fifty courses for over 300 learners, including via our new online learning platform. We also continued to provide end point assessment services for several apprenticeships via PIABC, the IOM3-owned Awarding Body and End Point Assessment Organisation.

2023 also saw significant interest in our professional awards, with 147 nominations across 38 categories, a testimony to the benefits of the rationalisation of the programme. The winners of these and the Student and Apprentice Awards were celebrated at the annual Awards Day event in London on 7 December.

We also introduced our new Sustainable Future Awards this year, sponsored by UKRI Innovate. Alongside presentations from Frank Paine Award winner lain Ferguson, and celebrity science communicator Anna Ploszajski, IOM3 Fellows were present to see Nextek win the Circular Economy category for its work to recycle plastic films, whilst the Sustainable Materials & Technology award went to a group consisting of ARIP, SCS Railways and University of Leeds for their work to repurposing excavation spoil. If your organisation is involved in real-life delivery on a more sustainable future through materials, minerals & mining, keep an eye out for the 2024 awards, launching in spring 2024.

The expertise of IOM3 members has never been more important to society and economy, and making sure that this expertise is fed into the public and policy debates is a key aim of ours. Our work on influence in 2023 includes significant effort on the topic of critical raw materials. The report written by our own Rachel Stonehouse, *The talent gap: critical skills for critical materials*, has been well received and sets out a qualitative analysis of the skills supply chain. We and several partner organisations then followed this up with an open letter to university leaders on the vital importance of skills in materials, minerals and mining in the transition to a low-carbon future. IOM3 has also been involved in the industry group on critical minerals resilience, which has now passed its report to Ministers. We have also continued our work to help all actors in the packaging value chain come together to make the forthcoming extended producer responsibility rules work as a key part of moving towards a more sustainable future. A third strand has been our work with the Henry Royce Institute and others to help develop a national strategy for materials innovation. Alongside all that, IOM3 has continued its regular round of input to formal and informal policy discussions across the breadth of materials, minerals and mining.

Our work on outreach continues to develop. Beside our co-operation with the Discover Materials Partnership, we have also agreed to support Minerals Matter, a joint effort to promote the importance of mining and minerals. We have now almost finished the task of bringing all our endowments into one vehicle, the IOM3 Education and Outreach Trust. This has an active programme to develop interest, recognise excellence and support professional development for students and those early in their career in materials, minerals and mining.

As always, the highs of successful delivery are tempered by sadness. Our thoughts are with the families and friends of those members of IOM3 who passed away during the year. Alongside Ian Bowbrick, I would also like to mention our Trustee and mining stalwart David Seath, and member of our Advisory Council Mike Scott.

As always, my final word goes in thanks: to the many hundreds of active supporters and volunteers in different roles such as assessors, Technical Community leadership group members and Trustees, who enable IOM3 to carry out its work on behalf of society and its members; and to the wonderful team here at IOM3 for a further year of delivery in support of materials, minerals and mining.

New appointments for 2023

Community Chairs (also have a place on Advisory Council)

- Dr Morwenna Spear FIMMM IOM3 Wood Technology Group
- Dr Emma Claxton CEng FIMMM IOM3 Ceramics Group
- Dr Parvez Alam FIMMM IOM3 Natural Materials Group
- Dr Matthew Thomas MIMMM IOM3 Sustainable Development Group

Executive Board

- Dr Dan Parvaz MIMMM co-opted but full Trustee
- Tom Hill MIMMM IOM3 Honorary Treasurer

Kate Thornton CEng CSci FIMMM IOM3 President

'As we bid farewell to another transformative year it's proper we take time to reflect on the remarkable journey of 2023.

This year has been a testament to the resilience, innovation and collaborative spirit that defines our Institute and its members. I wish to send my thanks to everyone involved and I hope you all have time to rest and recuperate before 2024.'

1-M3





- Kate Thornton becomes youngest ever IOM3 President
- 30th anniversary of Materials World

January











- First in person TC Forum held in London
- IOM3 hosts a Cambridge
 Judge Business School MPhil
 in Technology Policy Final
 Group Project focussing on
 the role of ceramics in energy
 transition technologies
- Presidential Address features presentations on EDI by IOM3 Member Network Chairs

March

RUBBER CON 2023 University of Edinburgh

10 - 11 MAY 2023

- RubberCon 2023 hosted in Edinburgh
- YPLC final held at the Armourers' Hall

May



 EUR ING Ian Bowbrick passes away unexpectedly

I-M3 Institute of Materials,

The talent gap: critical skills for

critical materials

July



- IOM3 Annual General Meeting 2023 held at London office
- Packaging panel discussion with Defra Director and industry experts

September



- First IOM3 Fellows Day and Sustainable Future Awards event held in London
- Lodewikus Vorster (South Africa) wins YPWLC final
- Joint letter sent to over 140 university leaders on the essential role of materials, minerals and mining skills

November

February

- Packaging webinar with Defra and HMRC to unpack data requirements for Extended Producer Responsibility and the Plastic Packaging Tax
- 2023 IOM3 Awards & Prizes closed with record 147 nominations across 38 categories



April

 IOM3 plays key role in new Critical Minerals Taskforce



June

- World Titanium Conference hosted in Edinburgh
- IOM3 wins bid to host FEMS Junior EUROMAT 2024



August

- Grantham office upgrades include new ceilings, improved heating and cooling
- IOM3 wins bid to host EuroCorr 2026



October

- 11th International Symposium on Ground Freezing hosted in London
- Active Supporter & Volunteer Hub launched
- First Strategic Advisors (SA) team meeting, defining work against nine themes



December

- IOM3 celebrates 2023 Awards & Prizes winners
- Future Materials, Minerals & Mining Conference held at The Manufacturing Technology Centre (MTC), Coventry



Membership in 2023

- 182 new Fellows (FIMMM)
- 605 new Members (MIMMM)
- 124 new Associates (AIMMM) & Technicians (TIMMM)
- 171 new Engineering Council registrants (CEng, IEng and EngTech)
- 34 new Science Council registrants (CSci, RSci and RSciTech)
- 17 new Society for the Environment registrants (CEnv and REnvP)
- 73 members gained the Qualified for Minerals Reporting (QMR) accreditation
- 54 membership, registration and accreditation workshops held, attended by 432 members
- Recruited over 2,220 new members, for the second year in a row
- Carried out 47 new and repeat academic and industrial programme accreditations
- Society for the Environment and Engineering Council Licences renewed for a further five years

CEnv & REnvP

CSci, RSci & RSciTech

CEng, IEng & EngTech

AIMMM & TIMMM

MIMMM

'I feel extremely proud to have taken part in this amazing competition and I am looking forward to what the future holds.'

Lodewikus Vorster (South Africa) 2023 YPWLC winner



Awards & competitions

- IOM3 launched the reviewed IOM3 Awards & Prizes and the judging panels scored 147 nominations across 38 categories. The winners were presented with their medals, prizes and certificates at the 2023 IOM3 Awards Day on 7 December at the London Headquarters
- The Student & Apprentice Awards recognising excellence in members of IOM3 who
 have recently completed a qualification or apprenticeship in a materials, minerals or
 mining field were presented at the Special & Publication Awards Lunch Reception,
 part of the 2023 IOM3 Awards Day in December. Congratulations to Alexandra
 Wainwright (IOM3 Award for Excellence in Foundation Learning) and Rosanna
 Roskilly (IOM3 Award for Excellence in Undergraduate Studies) for winning their
 categories. The 2023 Royal Charter Prize was presented to Rosanna Roskilly
- The IOM3 Funding panel reviewed and awarded over 15 Grants to Support Knowledge Exchange, giving the opportunity to student and early career members to attend conferences or present their work
- 50 entrants from five countries took part in the local, regional and national Young Persons' Lecture Competition and Young Persons' World Lecture Competition heats and finals. Congratulations to Georgina Burgoyne Morris who won the UK final and Lodewikus Vorster from South Africa who won the world final

Diversity & inclusion

- New overarching EDI statement was launched in March for both the IOM3 team and members bit.ly/4an1898
- IOM3 participated in a case study for TransFIRe in the latter half of the year, focussing on the development of the member networks for an EDI playbook: EDI Case Study: Launching Member Networks at IOM3 - Transfire (transfire-hub.org)
- IOM3 co-operated with working groups looking at progression frameworks and implementation for professional membership organisations' bids to create EDI hubs for resource and support
- Baby changing facilities were installed in the London office to support those attending events with young children
- AV systems in Bessemer and Mine suites were upgraded to include hearing loops
- New room and event booking forms specifically ask visitors if they have additional needs during their visit, giving those individuals who need support a chance to let the team know without feeling they have the hurdle of bringing it up
- The Institute continues to focus on EDI within the IOM3 recruitment process encouraging applicants who do not meet all the criteria to still apply if they believe they can do the job, as well as interviewing flexibly for those who need more time or adjustments in the process
- IOM3 offers virtual and in-person workshops as well as 1-2-1 mentoring for members approaching the registration phase of their career, and also makes reasonable adjustments at the professional review interview
- In IOM3 governance, the Advisory Council membership is currently 39% female, and the Executive Board is 31% female compared with an overall membership that
 is 17% female

'One area I am keen to champion is equity, diversity and inclusion as it is important to so many of our members. IOM3 and its five member networks have done a brilliant job in recent years making this a priority to ensure we aren't overlooking the needs of members.'

Dr Kate Thornton CEng CSci FIMMM speaking at her Presidential Address

Education & training • IOM3 ran five INFORM webinars with over 610 registrations on topics focussed on many

- 610 registrations on topics focussed on many characterisation techniques including mechanical testing, microscopy, and thermogravimetric analysis; INFORM webinars are free to watch and provide an opportunity to learn about the latest advances in technology from companies at the leading edge of product development and materials characterisation
- Despite a challenging economic climate, the Training Academy ran 46 courses (17 classroom, 18 virtual and 11 online/blended/distance learning) with a total of 309 learners (119 classroom, 90 virtual, 100 online/blended/distance learning) this year
- The online learning platform has gone from strength to strength this year, with three new packaging short courses added and existing qualifications moved over from the old system
- The first End Point Assessments for the Level 6 Materials Science Technologist (3) and Level 7 Materials Process Engineer (3) apprenticeships concluded in November
- 15 End Point Assessments were conducted for the Level 3 Composites Technician apprenticeship and PIABC registered to be the End Point Assessment Organisation for the next version of this standard
- PIABC successfully recruited and trained a new team of Independent End Point Assessors to support End Point Assessment activity

































Content & magazines

- Conscious effort was made to continually enhance the range of multidisciplinary content across materials, minerals and mining from academia and industry in *Materials World*, involving strong engagement with IOM3 technical communities and other prominent networks and organisations, such as the Critical Minerals Association, Henry Royce Institute, Innovate UK and the Transforming Foundation Industries Challenge
- Regular content was crafted that showcased the efforts of our sectors towards a low-carbon, resource-efficient society, including championing the role of mining and metals for the energy transition and discussion around critical materials and minerals supply
- Synergies were promoted between IOM3 disciplines through the articles produced and by encouraging Technical Community collaboration, such as a podcast that discussed common challenges for packaging and mining
- More policy-based content was included in Materials World to reflect the growing presence of IOM3 in this area
- The team endeavoured to ensure the diversity of contributors to the magazine, as well as content tackling issues around equity, diversity and inclusion, for example a podcast on Driving Ethnic Diversity in STEM, while *Materials World* included contributions from the IOM3 Pride and Ably Different networks, the Student and Early Career Group, and profiled women in materials, minerals and mining.
- Interaction with online industry news remains strong; they are some of the most popular pages of the website in terms of regular engagement
- 17 'IOM3 Investigates...' podcast episodes were released, focusing on issues relevant to professionals working in materials, minerals and mining sectors
- 3,398 plays in the last 12 months, with podcasts appearing in the top 3

Student & Early Career (SEC)

- SEC Committee Chair, Dr Aimee Goodall CSci MIMMM contributed to the EDI session at the 2023 Presidential Address talking about the issues relating to student and early career members
- Committee members joined forces once again and published two collective pieces on 'Pathways through Materials Science and Mentoring'
- Dr Aimee Goodall published the second blog on her journey to professional registration.
- Committee members once again contributed to features in *Materials World*, as did the 2022 YPWLC Hong Kong finalist
- Dr Chris Melvin CEng CSci MIMMM and Sarah Boad CEng CSci FIMMM, IOM3 Membership Development Manager joined forces and were the key presenters on this year's Road to Chartership online event with particular emphasis on mentoring
- Dr Martino Quantivalla delivered the annual Art Lecture 'Materials Engineering in stringed instruments: A journey between physics and craftsmanship'
- In November, we launched the Student & Early Career Hub, with information on awards, competitions & funding opportunities, upcoming events and recordings, relevant news, SEC Committee opinion pieces & blogs, and all resources relevant to student and early career professionals



Communications & policy

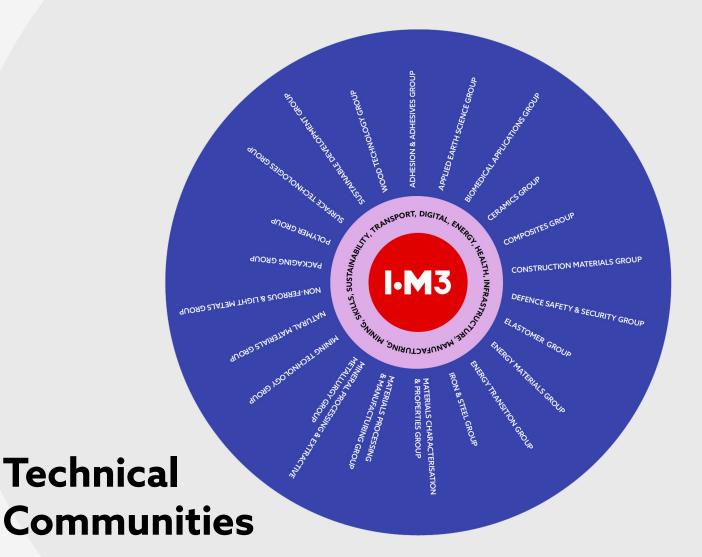
- New regular newsletters were introduced during the year: a monthly jobs & vacancies newsletter, Local Society events newsletter and a Higher Education newsletter
- IOM3 partnered with a number of organisations to jointly sign and send an open letter to over 140 UK university leaders setting out the essential role of materials, minerals and mining skills in modern society and transition to net-zero
- Contributing to critical materials policy making, IOM3 has been involved in the UK Government's Critical Minerals Expert Committee, the Independent Critical Minerals Taskforce launched by the Department for Business & Trade (DBT), and the Critical Minerals Intelligence Centre (CMIC) Steering Group
- Commissioned by UK Government and the CMIC, IOM3 published 'The talent gap: critical skills for critical materials' setting out the skills challenges and gaps facing the minerals value chain; the report was informed through a series of stakeholder workshops with involvement from DBT and the Department for Education (DfE)
- Further adding to the green skills agenda, IOM3 contributed to a number of roundtables with keys stakeholders, the Green Jobs Delivery Group and the Department for Energy, Security & Net Zero (DESNZ), as well as undertaking research into cross-sector green skills barriers and opportunities as part of the Environmental Policy Forum
- IOM3 has continued to support the packaging value chain with the ongoing policy reforms including through webinars, roundtables and panel discussions with the Department for Environment, Food & Rural Affairs (Defra), HM Revenue & Customs (HMRC) and key industry representatives, as well as submitting a response to the HMRC consultation on the potential adoption of a mass balance approach for chemically recycled plastic in the Plastic Packaging Tax
- Hosted a Cambridge Judge Business School MPhil in Technology Policy final group project focussing on the role of ceramics in the energy transition



- IOM3 has continued to work closely with the Henry Royce Institute and other partners to support the development of a National Materials Innovation Strategy
- IOM3 has worked with partners to shape public and policy discussions and promote the positive contribution professionals in materials, minerals and mining make to society including as a member of the National Engineering Policy Centre, Environmental Policy Forum, Science Council Policy Forum, and Professional Bodies Climate Action Charter
- Policy content has increased across IOM3 activities including online news, *Materials World* articles and responses to government announcements and publications
- IOM3 influence has grown with policy activity featured across a range of publications from *The Times* newspaper to industry newsletters and trade press

Digital transformation

- Website software updated and hosting was moved to the Cloud in April resulting in improved security and functionality
- Data cleansing and deduplication made good progress during the year, especially member data, though organisation data has proved more challenging
- New functionality was launched to manage Courses Accreditation and Membership & Registration Assessment processes
- Continuous improvements were made in website functionality to improve internal processes
- Planning and monitoring system was introduced for email campaigns to allow better scheduling and tracking
- Open rates for regular newsletters remain consistently good and well above the average
- Website tagging was restructured to incorporate the Institute's nine overarching technical themes
- Work continues on the implementation of a secure survey system for collecting diversity data
- We are about to launch functionality to allow online payments to be made via PayPal



- 2023 saw a bedding in of the new Technical Community (TC) structure launched in April 2022 with the two new groups covering Materials Characterisation & Properties and Materials Processing & Manufacturing developing their Leadership Teams and scope
- Several new Chairs were appointed and with those already in post they have been reviewing the make-up of and working with their Leadership Teams, the IOM3 Team, and the nine Strategic Advisors (SA) to assign priorities for activity against the overall strategic aims of the Institute
- 2023 saw the completion and implementation of Trustee approved changes as to how the Technology Communities Board (TCB) was structured and should operate
- The new TCB was appointed which includes Technical Community chairs, Strategic Advisors (SAs) and other members of the Institute, and will underpin all Institute technical activity and foster TC collaboration

- The TCB met for the first time in Autumn 2023 looking to define measures to monitor and assess TC performance, and delivery of benefits to members of the Institute and the broader communities
- Each SA will look after one of the nine technical themes and has been allocated two
 to three TC groups, based on their own areas of expertise, along with a dedicated
 IOM3 team member, to provide a mechanism to foster good communication,
 consistency of working and working together towards the broader objectives of the
 Institute, all of this under the governance of the new TCB
- A TC Forum, deferred from 2022 due to the rail strikes, was held in March 2023 and provided a fantastic networking opportunity for TC chairs, SAs and IOM3 team members to share best practice and foster strong working relationships, building on the positive changes made during the year, reviewing where they had got to and develop ways forward
- These changes provide a very exciting platform for the TCs to flourish in 2024 and beyond
- Members of the Institute can align themselves with TCs through the MyIOM3 portal on the IOM3 website, choosing one primary and as many secondary preferences of TCs as they wish

Library & journals

- Over 7,400 bibliographic records were added to the digital library catalogue, ICON, available via the IOM3 website
- Services continued including answering technical enquiries for members and non-members, providing a postal book loan service, and scans of papers
- Sage Publications Ltd was announced as the new publishing partner of the IOM3 journals from January 2024
- The IOM3 portfolio reached one million downloads and five journals received an Impact Factor for the first time
- The Scholarly Publications Committee (SPC) was assembled to support IOM3 in improving the journal offering across a range of disciplines

Events

- In 2023 IOM3 Events delivered 20 webinars, 5 hybrid in-person/online events, and 9 in-person events
- Events have attracted over 4,100 registrations from 53 countries
- Highlights included hosting the IRCO RubberCon 2023 at the University of Edinburgh in May which presented 81 oral papers and 61 posters over 3 days attracting 306 delegates from 27 countries and the World Titanium Conference at the Edinburgh International Conference Centre in June which presented 327 oral papers and 29 posters over 5 days, attracting 488 delegates from 28 countries
- In July, the team supported the European Collaborative Creep Committee to deliver the 6th International Creep and Fracture conference which attracted 107 delegates
- Unfortunately, the usually successful ClayTech UK 2023 scheduled for November was cancelled due to the current industry downturn which resulted in organisations being unable to support delegate attendance
- The team successfully won bids to host the FEMS Junior EUROMAT 2024 (15-18 July 2024) and the European Federation of Corrosion EuroCorr conference in Dublin (September 2026)

hybrid in-person/online events

in-person events

webinars



The 2023 Starpack Students competition received 110 entries from 17 universities and colleges submitted across five category challenges set by Alupro, Logoplaste, Metal Packaging Manufacturers Association, Smurfit Kappa and VPK UK & Ireland. The judging panel, comprised of independent packaging and design experts, marked entries on innovation, design, sustainability, quality and market potential. 18 highly commended, 32 bronze, 23 silver and 17 gold awards were presented. Sponsor prizes were awarded as follows:

- Brief A: Replacing multi-material packaging sponsored by Alupro James Albosh, Nottingham Trent University
- Brief B: World Cup Qatar 2022 promotional soft drinks bottle sponsored by Logoplaste Duncan Wyllie, City of Glasgow College
- Brief C: Metal gift pack for champagne or sparkling wine sponsored by The Metal Packaging Manufacturers Association Matthew Noon, Loughborough University
- Brief D: Walkers crisp in or crisp out front of store display sponsored by Smurfit Kappa Hajra Shaheer, University of Engineering and Technology, Lahore
- Brief E: Sustainable solutions with corrugated cardboard sponsored by VPK UK & Ireland Luke-Anthony Peart, Nottingham Trent University
- The Eric Dickens Memorial Award was awarded to Nottingham Trent University in recognition of the high quality of packaging design evidenced by its students' success in this year's competition

IOM3 team & building

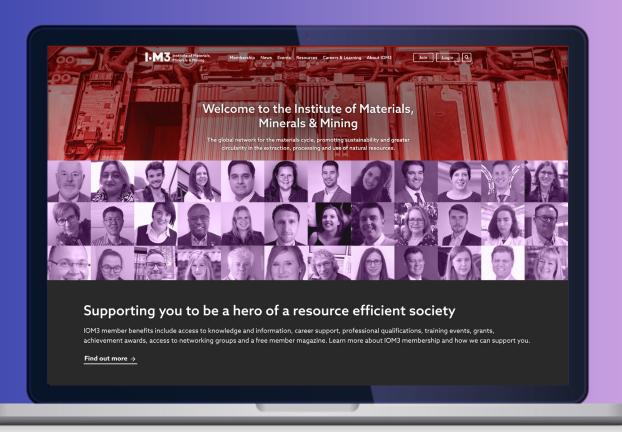
Following the sudden and sad loss of our friend and colleague Ian Bowbrick, the team have pulled together and worked incredibly hard under difficult circumstances. It is testament to Ian's hard work and dedication to membership that the membership team especially wanted to work hard to honour his commitment and keep striving to deliver excellent service to our members and wider community. During November we announced that Paul Skerry from Laing O'Rouke would be joining IOM3 as our new Director of Membership & Professional Standards in January 2024. The whole of the IOM3 team are delighted to have him on board. Excitingly during the latter half of 2023, we have taken some steps to developing the Institute's marketing strategy and look forward to welcoming a new Head of Marketing and Communications Executive in 2024.

During 2023 both our London and Grantham hubs underwent some improvements to their security with new CCTV, and access systems ensuring the safety of our team, members, tenants, visitors and assets. At our London hub the AV systems in our main Bessemer and Mine suites were upgraded to provide better hybrid facilities, additionally delivering the introduction of hearing loops. Other small changes around the building included the installation of baby change facilities to support those attending events with young children. At our Grantham hub changes were made to improve the heating and cooling within the building, alongside new ceilings, LED lighting and wayfinding signage to provide a better environment and experience for our team and visitors as well as continuing to focus on reducing our carbon output.

This year the IOM3 London hub has participated in the London Mayor's Business Climate Challenge. This challenge sets business users within London to reduce their energy usage by 10%, and we have been supported by both the BCC and our BID partner Fitzrovia Partnership with training and development for our team, energy



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