

<p><b>Institution:</b> Cardiff Metropolitan University</p>
<p><b>Unit of Assessment:</b> UOA17 – Business and Management Studies</p>
<p><b>1. Unit context and structure, research and impact strategy</b></p> <p><b>Summary</b> Cardiff Met did not submit to this Unit of Assessment (UoA) in 2014, although two Tourism researchers based in the Cardiff School of Management (CSM) were returned as part of the Sport and Exercise Sciences, Leisure and Tourism submission (<b>87% 3*/4*</b>). Returning <b>31 staff</b> to REF 2021 therefore reflects significant progress by investing in and developing a strong and sustainable research environment. Performance improvements this cycle include Research and Innovation (R&amp;I) income of <b>£8.9m</b>, which includes a <b>283%</b> increase in HESA-defined research income over the previous assessment period. R&amp;I grant sources include <b>RCUK, EU</b> and <b>Innovate UK</b>. We also generated <b>242</b> research outputs this period and <b>141</b> research degree completions from School-registered students compared to 14 in the previous cycle.</p> <p><b>Context</b> Of the staff returned here, 90% are either from the CSM or were CSM employees until 2018 when they were transferred to the newly formed Cardiff School of Technologies (CST). To reflect this, the term ‘School’ will henceforth be used to describe the Business &amp; Management Studies environment unless an issue is specific to the current structure.</p> <p>CSM relocated to a £13m purpose-built facility on the Llandaff Campus in 2010. Our key areas of expertise at that point were: economics and finance; tourism, hospitality and events; human resource management and strategy; computing and informatics; and – more recently - operations management and logistics. The development of the CST, based on computing and informatics experts from CSM, was accompanied by an initial investment of <b>£5m</b> and 17 appointments since 2018, including two at Professorial level. A further <b>£3.4m</b> is earmarked for CST’s development over the next two years.</p> <p><b>Research and Impact Strategy</b> Since 2014, our R&amp;I strategy has focused on <b>five</b> key areas:</p> <ol style="list-style-type: none"> <li>i. Providing staff with time and space to research by allocating more than <b>7,000</b> staff days to research activity within the period via the ‘Time for Research’ scheme;</li> <li>ii. The development of <b>impact</b> through targeted industry partnerships and investment in centres such as the Creative Leadership and Enterprise Centre (CLEC) and the Value Flow Centre (VFC), which make a significant contribution to regional regeneration and economic growth;</li> <li>iii. Strategic external appointments and internal staff investment leading to <b>four</b> new <b>Professors</b> and <b>four</b> new <b>Readers</b>, with <b>13</b> staff completing doctorates and <b>14</b> enrolled on doctoral degrees;</li> <li>iv. Fostering critical mass and peer support, with investment of <b>£255K</b> to underpin three research centres and five research clusters;</li> <li>v. Developing an open access research culture with a <b>475%</b> increase in research output downloads since REF2014.</li> </ol> <p><b>Time for research</b> Our ‘Time for Research’ scheme allows staff with an interest in developing a research profile <b>152 hours</b> per year free from formal teaching and administration and on top of a contractual 171 per annum for research &amp; scholarly activity. Those with more developed profiles receive up to <b>304</b> extra hours – the equivalent of a day a week and an investment of <b>~£145K</b> in 2019/20 alone. As</p>

a result, we have established a core of highly committed research active staff in an enabling environment of supported research themes. Investment in staff research time has increased research grant capture, for example from **Erasmus+** (Next Tourism Generation Alliance, €4m, CMU **£560K**) and **European Social Fund** (20Twenty Leading Business Growth Programme, **£4.6m**; Circular Economy Innovation Communities, £1.6m, CMU **£865K**).

### Impact

Developing impactful research has been a key focus, particularly for the three CSM Research Centres. Our strategy has met with significant success, with our research assisting the launch of at least **25 new businesses**, safe-guarding or creating over **2,000 jobs**, underpinning **£187m** in growth and savings across **1,219 businesses** and influencing Welsh Government policy towards health and activity programmes affecting **45%** of the Welsh population. We also secured **13 knowledge exchange projects** generating **£1.13m** in external income, including Knowledge Transfer Partnerships (KTP), SMART Partnerships<sup>1</sup> and Knowledge Economy Skills Doctoral Scholarship 2 (KESS2) projects.<sup>2</sup>

We achieved these impacts by harnessing strong collaborative, networks and partnerships, including with the **Organisation for Economic Co-operation and Development (OECD)**, **Welsh Government**, **Oxfam Cymru**, **Construction Industry Training Board**, **National Cyber Security Centre**, **Make UK**, **Federturismo Confindustria** (the Italian Tourism Trade Association), **The Innovation Caucus**, and **UK Industrial Strategy**. The School is also a member of the **European Foundation for Management Development (EFMD)**, a non-profit organisation dedicated to management development and a globally recognised accreditation body for business schools and their corporate programmes. Notably we were awarded prestigious **Small Business Charter** status by the **Chartered Association of Business Schools** for our role in supporting small business, local economies and student entrepreneurship.

### Strategic recruitment and advancement

We recruited two Professors in the period (**Thomas** and **Prakash**) while two further Professors (**Crick** and **Platts**) were internally promoted and **Kyaw**, **Murphy**, **Khan** and **Hewage** were promoted to Reader. We invested **~£804K** to increase research capacity by supporting **27** staff to undertake doctorates through supervision, a fee waiver and 271 hours workload allocation *per annum*.

### Research structures

We have implemented research structures to build critical mass and research culture. CSM has three institutionally recognised Research Centres:

1. **The Creative Leadership and Enterprise Centre (CLEC)**. Led by **Morgan**, CLEC undertakes research around entrepreneurship, management skills, innovation, and economic development. It is also the delivery vehicle for the 20Twenty Leading Business Growth Programme, a European-funded research and delivery programme involving small-to-medium sized enterprise (SME) management skills development and the related Construction Futures Wales (CFW) Programme. CLEC has assisted over **900** organisations to realise growth of **£155m** and created or safeguarded over **2,000** jobs. Members of CLEC regularly provide policy evidence to the likes of Welsh Government and the UK Industrial Strategy.
2. **The Value Flow Centre (VFC)**. Led by **Francis**, the VFC focuses on applied research around Contemporary Operations Management Paradigms (COMPS) and Supply Chain and Procurement systems development. These have saved over **£30m** in **319** companies across the UK including [text removed for publication]. VFC has also

<sup>1</sup> Collaborative R&D projects with Welsh businesses, up to 12 months

<sup>2</sup> ESF-funded Welsh Government scheme linking Welsh companies with universities to undertake collaborative research projects via a PhD or MRes

influenced curriculum development, providing the theoretical underpinning for our MSc Production Engineering Management and MSc International Supply Chain and Logistics Management.

3. **The Welsh Centre for Tourism Research (WCTR)**. Led by Matthews and **Haven-Tang**, WCTR focuses on policy-informing research related to tourism, hospitality and events. The Centre has strong links with the Welsh Government's Major Events Unit and has developed an event impact evaluation methodology that was applied to the **2018 Volvo Ocean Race** and the **2017 UEFA Champions League Finals**. WCTR is also involved in the Next Tourism Generation Alliance (Wales), part of a **€4m** EU project addressing digital, social and sustainability skill needs in tourism and related sectors.

Complementing CSM's centres are five CST research clusters:

1. **AI, Robotics & Data Science Cluster (AIRDSC)**. Led by Chew and **Khan**, the AIRDSC investigates issues around artificial intelligence, machine learning, big data and robotics. It is home to the EUREKA Robotics Lab, one of only 14 specialist centres in the UK focused on robotics research, and the only centre specialising in social and service robotics. The cluster has won two Smart Partnerships knowledge exchange projects in the period with a combined value of **£111K**.
2. **Cybersecurity, Information Networks Centre (CINC)**. Led by **Hewage** and **Mallikarachchi**, CINC undertakes research on cybersecurity and privacy, secure information networks, data communication processing and user behaviour analysis. Recent successes include a **£73K** Smart Partnership knowledge exchange grant to improve methods for human-pose estimation in life sciences applications.
3. **Centre for Industry 4 and Blockchain Research (CI4BCR)**. Led by **Khan**, CI4BCR is at the forefront of blockchain research, Industry 4.0 and other distributed technologies, crypto-governance and crypto-economy space. It has captured three knowledge exchange grants within the period with a combined value of **£423K**.
4. **Creative Computing Research Centre (CCRC)**. Led by **Carroll** and **Thorne**, CCRC researches human computing interaction (HCI), creative design, visualisation, augmented reality (AR) and games. Members collaborate broadly, including with Cardiff University's Brain Research Imaging Centre (CUBRIC). They recently won a **£217K** Smart Expertise knowledge exchange grant to develop a framework to transform data into value for Welsh business.
5. **Bio-Engineering Research Group (BRG)**. Led by **Jayal**, BRG focuses on applying engineering principles and technology in medicine, sports and healthcare. Recent projects include biomedical signal analysis and a bioinformatics pipeline to generate a denovo assembly for a bacterial genome.

Research centres and clusters are complemented by more fluid research groups responding to emerging research interests such as **Murphy's** Public and Third Sector (PATS) Group which coalesces interdisciplinary activity involving staff from our Schools of Art & Design and Education and Social Policy around all aspects of area-based social, economic and environmental regeneration.

#### **Developing an open access research culture**

Building an open access culture has been a critical facet of our drive to build an excellent research environment. Staff are supported to publish in open access journals wherever appropriate and receive training in intellectual property and licensing, GDPR and research ethics. They are also encouraged to produce data management plans consistent with those required by UKRI in relation to the management and sharing of data (see Institutional ES). All research outputs are deposited in the University's DSpace repository immediately after

acceptance using a bespoke and easy to use 'drop off' facility. This allows our work to be available to, and accessed by, a wider audience (**260,561 downloads** in this REF period, compared to 45,289 in the last). Our researchers also utilise the more recent Figshare platform (see Institutional ES), which hosts, for example, material from the EU-funded Next Tourism Generation Alliance (NTG), proceedings of the ICCAS 2019 and Advances in Management and Innovation (AMI) research conferences, and material from CSM's working paper journal. Figshare enables this material to be interactive, searchable and shareable inside the institution, within cross-institutional teams or by the public at large, making collaboration and dissemination easier.

### **Future Strategy**

The newly launched Cardiff School of Technologies is already showing strong growth in both research active staff and student numbers. They plan a stand-alone submission to the Computer Science and Informatics UoA in REF2028, a submission that will build on the research foundations established within CSM and provide a catalyst for ongoing collaboration across the separate Schools. This section will therefore focus on CSM's plans for the next REF cycle.

Having established a sufficiently strong research environment to make a sizeable REF return for the current cycle, our focus going forward will be to consolidate progress by focusing effort and resources on four areas:

### **Supporting and developing our researchers**

Supporting researcher development will continue to be integral to our strategy. As well as continued support for the Time for Research scheme, we will supplement the University's Early Career Researcher (ECR) Forum and Action Learning Sets by providing guidance and mentorship to ECRs. For example, we will continue sessions at the annual AMI conference which have previously included topics such as 'Becoming an excellent academic journal article reviewer', 'The challenges of publishing quality research in the Business Management discipline' and 'How to get your work published in an ABS ranked journal'. We also plan mentored writing groups, pairing Professors and Readers with ECRs, with a target of producing **at least 40** joint publications in the upcoming REF cycle.

### **Enhancing research output quality**

To continue our high-quality research growth, we have identified staff with the potential to significantly improve their output quality. Together with the University's R&I support unit we will systematically mentor staff to design and execute research at the highest quality levels and target a significant uplift in grant capture during the next REF cycle. There will also be important high-quality outputs to accrue from two recent European-funded collaborative projects (combined value **£1.4m**) which extend beyond the REF2021 period - Circular Economy Collaborative Innovation Communities (CEIC) (**Clifton, Rees, Brooksbank, Murphy** and **Beverly**) and Next Tourism Generation Alliance (NTG) (**Carlisle**). We will also build on applied research grant capture strengths fostered during this REF cycle to leverage increased funding from 'cherished sources' such as the European Commission, ESRC and EPSRC. Lastly, the critical mass of research and research leaders developed during the current cycle also creates further opportunities for new PGR students and postdoctoral Research Assistants, particularly as staff currently on doctoral programmes graduate and join the supervisory pool. This will increase our research degree supervision capacity significantly and greater capacity to increase the volume of quality outputs. Collectively, these initiatives will allow us to contribute strongly to the ambitions of the University's Strategic Plan to continue the growth in research volume and quality that was integral to our being listed in the Times Higher Education (THE)'s World University rankings in 2019 and 2020 and the THE Young University rankings in 2020.

### **Supporting research with impact potential**

We will build on our established strengths in knowledge transfer to increase grant capture in partnership with industry by **25%** using the increased capacity gained from the 14 staff who will complete doctorates in the period. In addition to continuing existing impact development through

our research centres, we will support staff to develop research with impact potential, for example by supporting them to apply to the University's new **Impact Builder** development fund which seed funds for potentially impactful research. Research with impact potential includes **McLoughlin's** development of a recognised tourism indicator system for sustainable destination management and **Carroll's** exploration of an applied multidisciplinary aesthetic programming approach to engage young girls in computing.

### Developing interdisciplinarity

We will continue to build research quality by developing novel interdisciplinary programmes of research. A key conduit will be Cardiff Met's three new **Global Academies** (GAs), a major component of the institution's forward-facing research strategy. GAs are collaborative, interdisciplinary endeavours bringing together strengths across research, innovation and teaching to address global challenges around Health and Human Performance, Human Centred Design, and Food Science, Safety & Security. We have had early successful engagement with the latter; a successful collaborative funding bid between the WCTR, CST, and the Food Industry Centre in the Cardiff School of Sport & Health Sciences. A fourth GA - Resilient People and Places - will provide the platform to build upon existing interdisciplinary research involving **Haven-Tang**, Baldwin and Gill (CSAD) and **Clifton** and Loudon (CSAD).

## 2. People

### Summary

The School's research environment is vibrant, diverse and inclusive. **Half** of CSM's Directorate are women, **45%** of submitted staff are BAME and **52%** are female. The School has made a significant strategic investment in research within a challenging HE climate, investing an average of **£164K per annum** in staff research time, creating **eight** Professors and Readers and supporting **27** staff to undertake doctorates. A **£5m** investment in CST included dedicated PGR research labs, and this REF cycle saw **141** research degree completions from School registered students. Currently, **59%** of our staff hold doctorates, **13** of them qualifying with School support in the period. A further **14** staff are currently enrolled on doctoral study programmes – again with significant School support.

### Staffing and Development Strategy

Central to our strategy to support our staff is a formalised research mentoring programme, headed by the Associate Dean for Research (ADR), which complements the University's ECR Forum. The programme provides targeted support for early career researchers, tailored for individual circumstances and career stage. Staff are encouraged to discuss their plans for research publications and grant applications and to highlight any issues affecting their ability to undertake research.

The School has made significant investments to ensure staff have ring-fenced dedicated research time. Our 'Time for Research' scheme's (TfR) overarching rationale is to promote the School and University strategic aim to increase research engagement per FTE member of academic staff. It provided **7,000 dedicated R&I hours** during academic year 2019/20 alone, representing an investment in staff R&I time of approximately **£1.15m** since 2014. TfR has been instrumental in enhancing the School research culture, providing the basis for this REF return. Our submission includes **24 staff** who have benefitted from TfR. In 2015/16 TfR was extended to include user-focused activities specifically centred on research impact. Staff apply for TfR on an annual basis, outlining their research plans and specifying outputs. Progress against mutually agreed targets is monitored as part of the performance review process, with outcomes forming the basis for the following year's workload allocation of R&I hours.

We also support staff in other ways. For example, the School and University met the **£24K** costs of supporting **six** of our staff who successfully applied to the award-winning Welsh Crucible - a competitive Wales-wide development programme for future research leaders which in 2019 saw 120 applications for 30 places. In 2015 we launched the 'Advances in Management Working Paper Series Journal' (ISSN: 2050-4179) to allow ECR and PGR students to test ideas in a

peer-reviewed outlet before pursuing formal publication routes. In 2017 we launched the annual 'Advances in Management and Innovation' (AMI) research conference, which is sponsored by **Seren Group** and **MakeUK** and engages the early career and PGR student community. Its foci are building a research culture via the opportunity to present work in a supportive environment and providing an outward-facing showcase for our research. Since 2017, **318 delegates** have attended, and **96 papers** have been presented. The 2019 event saw paper presentations increase by **50%** and delegate numbers rise by **67%**. It included papers delivered by members of our collaborative partner network from **India, Greece** and the **Middle East**, and enjoyed increased participation by academics from other British Universities. AMI also attracts keynote speakers from academe and industry such as Prof Paul Jones of Swansea University (Editor-in-Chief, International Journal of Entrepreneurial Behaviour and Research). Both the journal and AMI Conference proceedings are published in hard copy and online through Figshare which has proved very successful. For example, AMI 2020 - which took place online - attracted 78 delegates and significant subsequent engagement via Figshare (**5,315 views** and **769 downloads** as of 31/7/20). Together the journal and AMI conference complement TfR in realising both the School research strategic objective to 'support and develop staff capability and capacity towards research' and the University's strategy of achieving 'growth in the volume, quality, value and impact of research and innovation'.

### Recruitment and Promotion

Our commitment to internal development and promotion is evidenced by the promotion to senior research positions of **Crick** (SL to Professor of Computer Science & Public Policy); **Kyaw** (SL to Reader in Applied International Economics and Development); **Murphy** (SL to Reader in Local Economic Development); **Khan** (SL to Reader in Data Science); and **Hewage** (SL to Reader in Data Security). Moreover, **Mason-Jones** was promoted to Graduate Studies Coordinator and **Aminu** to the role of Ethics Coordinator. This REF period also saw **35** staff qualify as research degree Supervisors, and **8** as Directors of Studies. We further enhanced our research culture by recruiting four R&I leaders in the REF period, including **Rees**, who joined as Associate Dean (Innovation) in 2014, **Thomas**, CSM Associate Dean (Research) and Professor of Supply Chain Management (2015), **Prakash**, CST Associate Dean (Research) and Professor of Creative Technologies (2018), and **Platts**, Professor of Autonomous Systems and Dean of CST (2018). We also appointed or renewed **9** Visiting and Honorary Professors in the period, while the delivery of invited seminars and masterclasses by a range of external academics and practitioners has also served to inspire our research community.

### PGR students

As of July 2020, we had **44** (FT = 14; PT = 30) PGR students enrolled on doctoral programmes. School-based doctoral completions have increased **fourfold** to **61** since the previous REF period, while a successful franchise agreement with London School of Commerce (LSC) resulted in an additional **80** Cardiff Met PhD completions for CSM registered students, resulting in a total **141** completions. To accommodate our expanding research degree provision CSM refurbished and equipped a second PGR student research room, with the **£5m** initial CST estates investment providing fully equipped, dedicated PGR research labs.

Academic Year	DBAs awarded	PhDs awarded (LSC in brackets)	Total Research Degrees awarded
2013/14	3	4 (1)	7 (8)
2014/15	0	3 (3)	3 (6)
2015/16	0	9 (12)	9 (21)
2016/17	1	11 (8)	12 (20)
2017/18	3	9 (24)	12 (36)
2018/19	1	10 (19)	11 (30)
2019/20	1	6 (13)	7 (20)
<b>TOTAL</b>	<b>9</b>	<b>52 (80)</b>	<b>61 (141)</b>

Our vibrant doctoral community is diverse, and includes nationals of Russia, Nigeria, China, Iran, Egypt, Oman, Qatar, Pakistan and Sri Lanka. A strong professional doctorate (DBA) cohort is

linked to a range of international partners sponsoring doctoral students' studies. Our students have benefitted from a number of competitively won awards, including full bursaries from the **Savoy Education Trust**, ESF-funded **Knowledge Economy Skills Scholarships** (7), and Cardiff Met's **Research Innovation Awards** (2). Our PGRs have also obtained research mobility awards from **Santander Universities**, and research support funding from **Enterprise Educators UK**, and the **Institute of Small Business and Entrepreneurship**. Collectively these have enriched the research environment and the quality of PGR training experience.

We provide a range of research degree programmes that facilitate progression to doctoral-level study, including a Masters of Research (MRes). A Doctor of Management (DMan) programme, launched in 2017/18, enables us to recruit highly motivated and talented students from applied backgrounds with the potential to develop into excellent doctoral candidates. It had 10 students enrolled as of July 2020 and the first cohort is expected to complete in 2022/23. The DMan includes a formal programme of research training and practice before students embark on independent research, targeting a 100% on-time-completion rate. CLEC's 20Twenty Leadership Programmes provide a good avenue for progression onto the DMan, with a recent exemplar being Liz Andrews, CEO of City Hospice and former Chief Executive of Cancer Research Wales.

A robust application and interview process safeguard the recruitment of students able to complete their research degree programme on-time and with potential to generate publishable quality outputs. Our current acceptance rate is ~15%, with demand particularly outstripping supply in Finance, Economics, Marketing and Tourism & Hospitality, which is why increased supervision capacity is a priority for the next REF cycle. Capacity issues notwithstanding, our alignment of student research interests to staff expertise is evidenced by the results of the 2020 Postgraduate Research Experience Survey (PRES) which found **100% of CSM students** agreed that their supervisors had the skills and subject knowledge to support their research.

Structured provision and support ensure doctoral candidates are fully equipped for their studies. Following enrolment, all PGR students complete an induction programme and attend a centrally organised Research Skills week. This programme is supplemented by ongoing training offerings to support research skills and professional development and includes evening sessions to cater for part-time students. In addition, all PGR students undertake a 60-credit Level 7 module leading to a Postgraduate Certificate in Applied Social Research Methods (PGCASR) during their first year of study. This provides them with a sound framework for developing their research skills, and **100%** of students have said they would recommend PGCASR to others. Our PGRs can also join undergraduate and Masters modules in order to enhance their subject-specific knowledge, and are encouraged to attend Professorial, professional body and visiting lecturer events. To safeguard the quality of supervision, researchers who embark on research degree supervision for the first time complete an induction programme before being eligible to join supervisory teams. Staff new to PhD supervision join supervisory teams with at least one other experienced supervisor to maximise mentorship opportunities.

A series of other administrative structures provide support for our doctoral students. For example, students are expected to submit their formal Research Degree Proposal (RDP) to the School Research Degree Committee (RDC) within one year of registration, with developmental feedback provided if a resubmission is required. All research projects must receive approval from the School's Research Ethics Committee, and ethics applications for data collection can only be considered once the RDP has been approved and ratified by University RDC. Students without research-focused masters qualifications are enrolled as MPhil/PhD students, and transfer to PhD status following the submission of an extended literature review and detailed plan for developing the work to PhD level. They present and defend this work at a Transfer Interview (TI) which takes the form of a 'mini-viva' by the supervisory team and an independent internal assessor. While students in possession of a relevant Masters degree can enrol directly on a PhD they are nevertheless encouraged to go through the MPhil/PhD transfer process for its developmental value. Annual Monitoring Reports (AMRs) provide a conduit for student progress to be tracked, which includes skills training and development needs. Lastly, completing students are given a preparatory mock viva before the formal *viva voce*.

A range of School-specific initiatives ensure research degree students are well-prepared for the world of research. For example, they are all active members of the R&I groups and all CSM PGRs commit to publishing in the Working Paper Journal or presenting to the PGCASR/DMan seminar groups. This ensures they receive developmental feedback to help them produce work of the highest possible quality prior to external presentation or publication. All our research degree students must also present at the annual AMI conference within the first year of their studies and are supported to attend external conferences (total funding during the period ~£150K). Students may also submit skills development requests to the ADR before a fieldwork phase, and other skills development sessions are routinely offered centrally by for example, Organisational Development, Information and Library Services and Research & Innovation Services.

### Equality and diversity

As a values-driven university, diversity is extremely important to us. The University has committed to signing the Advance HE Race Equality Charter by 2024 and aims to achieve an Institutional Silver Athena SWAN award early in the next cycle. As part of the drive to achieve the Race Equality Charter, Cardiff Met has established a Race Equality Charter stakeholders working group, chaired by CSM's **Yafele**. We are significantly better than the sector average in this area, with 31% of our REF eligible and **45%** of our REF submitted staff being BAME. Five of CST's Professors and Readers are also BAME. Women comprise **52%** of our REF 2021 submission, in proportion with the eligible pool and well above the REF2014 average of 34% for Business and Management submissions<sup>3</sup>. Two of the four designated 'research leader' posts in CSM are also occupied by women. Identifying potential research leaders at an early stage and encouraging them to progress has been integral to the School addressing gender inequality. As part of this process, we have supported **9** female researchers to attend the *Women to Professor* series of workshops and Action Learning Sets (**Bolton, Carlisle, Carroll, Haven-Tang, Kyaw, Mason-Jones, Massoud, Oeppen-Hill, Rees**). Launched in 2018 by the PVC R&I, Institutional Athena SWAN SAT Chair and University Director of Research, these workshops make routes for promotion explicit, use peer-to-peer support, mentoring and an Action Learning Set model to help attendees reach their goals. One member of the group (**Kyaw**) was promoted to Reader in 2019 and three others have applications in development. All staff with REF-related responsibility and all research leaders have undergone compulsory unconscious bias training. CSM and CST both have Athena SWAN Departmental Bronze awards in preparation for submission in the next REF cycle, and the University achieved a second Institutional Athena SWAN Bronze award in 2020. The rights of our LGBTQ+ community are also important to us. The Deputy Chair of Cardiff Met's LGBTQ+ staff network is from CSM and 2019-20 evidenced the commitment we have shown in this area with Cardiff Met's entry to the Stonewall Top 100 employers for the first time.

Consistent with Cardiff Met policies on inclusivity, all essential meetings take place within core working hours (10am-4pm), with key committee and board dates communicated well in advance to ensure that attendance can be planned. Family-friendly policies, such as flexible working and parental leave are accessible to all staff, and line managers receive guidance as appropriate, for example on implementing arrangements to support parental leave (**8 researchers** in the REF period) or planned sickness leave. Phased returns to work are employed following extended periods of leave, and many staff take advantage of flexible working policies to accommodate caring responsibilities and remote working options.

### 3. Income, infrastructure and facilities

#### Summary

Our R&I activities are primarily undertaken within **three centres** and **five clusters** and much of the work is interdisciplinary. Supported by an internal budget of ~£255K, researchers in these centres and clusters secured **£8.9m** of research and innovation income during this REF cycle,

<sup>3</sup> HEFCE analysis [https://dera.ioe.ac.uk/23924/1/HEFCE2015\\_17.pdf](https://dera.ioe.ac.uk/23924/1/HEFCE2015_17.pdf)



enabling us to achieve our strategic priorities around research, engagement and knowledge transfer, including through **29 knowledge exchange** projects. Investment of **£5m** in new facilities for CST includes a series of labs and suites for research and is in addition to **£510K** invested in research facilities by CSM.

### Income

We have secured **£1.4m** of research income during the assessment period, an increase of over **280%** from the previous REF period. This income and the associated research have been instrumental in leveraging a further **£7.5m** of applied research and innovation funding from a diverse range of sources including charities, **RCUK, EU, Innovate UK, and Welsh Government**. Collectively, the yearly average of **~£1.3m** combined R&I income has been integral to the School achieving strategic priorities around engagement and knowledge transfer, with concomitant impact on local, regional, national and international economies. For example, the 20Twenty Leadership and Leading Business Growth Programmes led by **Morgan** and funded by the European Social Fund (ESF) have generated significant R&I funding. This research and delivery programme aimed at improving the growth prospects of Welsh businesses has a total value of **£8m**, including match funding and a **£4.6m** EU grant (2014 and 2020). A related research project, Construction Futures Wales (**£965k**), also led by **Morgan** (2014-18) was jointly funded by **Welsh Government** and the **Construction Industry Training Board (CITB)**. Building on economic development policy expertise, the **Hodge Foundation** commissioned wide-ranging research on 'The Future of the Welsh Economy' led by **Morgan** with **Kyaw** and **Clifton** (**£400K** in two tranches, 2016-2020).

Other notable applied research funding included 4 **Knowledge Transfer Partnerships** and 2 **SMART Partnerships** (**£950K** in total) with a range of businesses: Yard Associates x 2 (**Thorne, Hewage, Calderon, Crick**); Coup Media (**Crick**); Satori Lab (**Khan, Calderon**); Business Butler (**Khan, Thorne**); and Window Cleaning Warehouse (**Khan, Hewage**). We have also secured 7 ESF-funded **Knowledge Economy Skills Scholarships (KESS2)** (**£448K** in total) with both public and private sector partners: Sport Wales (**Bolton**); Simply Do Ideas (**Clifton**); Yard Associates x 2 (**Thorne, Carroll**); Aytel (**Jayal**); Coin Cover (**Khan**); and Companies House (**Khan**).

Considerable funding was also secured from the Welsh European Funding Office (WEFO) for the **£1.6m** Circular Economy Collaborative Innovation Communities (CEIC) project for third and public sector organisations in the Cardiff and Swansea Bay City Region (**Clifton, Murphy, Rees, Brooksbank, Beverly**) - in partnership with Swansea University (2020, CMU **£865K**). Other research grants include the **EU-funded** Next Tourism Generation Alliance (NTG), the first pan-European partnership for improving collaborative relationships between education and the tourism industry. This **€4m** project was led by *Federturismo Confindustria* (the Italian Tourism Trade Association) with **£560K** allocated to Cardiff Met for work packages led by **Carlisle**. Contract research for the economic impact of major events has also been undertaken by WCTR (**Haven-Tang, Jaimangal-Jones, Minor**) in conjunction with **Clifton** and **Rowe**. Events included the 2017 UEFA **Champions League Finals** commissioned by the **Football Association of Wales** and the **Welsh Government's** Major Events Unit (**£25K**) and a 2018 study commissioned by **Cardiff County Council** (**£25K**) to evaluate the impact of the **Volvo Ocean Race** stop-over in Cardiff. WCTR has also made effective use of QR funding through two research bursaries for doctoral students (2018-2021) in tourism, SMEs and economic development, with a focus on rural areas in Wales. **Francis** and **Thomas** collaborated with staff from the International Centre for Design and Research to secure funding from the **UK Commission for Employment and Skills** (**£75K**) for the Innovative Supply Chains Project (InSCaPe). This helped four firms to develop supply chain capabilities to introduce new products to market. Finally, **Haven-Tang** and **Thomas** were funded by **Welsh Government** (**£25K**) to work with **MakeUK** for the Productivity Challenge, assisting 41 Welsh food supply chain companies. Research work led to the development of a new MSc in International Supply Chain and Logistics Management, an MSc in Production Engineering Management, and a new Doctor of Management award.

**Infrastructure**

Our R&I activities are predominantly undertaken within centres and clusters structured around a particular area of research or practice. Our researchers have autonomy in setting their research agendas within our strategic framework and infrastructure. We work closely with the central Research & Innovation Services unit (RIS), Finance department and People Services to support the advancement of the University's research agenda. Much of our research is interdisciplinary and includes staff from other universities and Cardiff Met Schools including Art & Design, PDR and Sport and Health Sciences. For example, **Haven-Tang** and **Pritchard** were funded by a Cardiff Met Research Innovation Award to work with CSAD on research investigating the well-being aspects of various tourism experiences. The work leveraged CSAD's Perceptual Experience Laboratory (PEL) - a **£147K** mixed reality laboratory that simulates real world environments through immersive sound, smell, temperature and vision, allowing a range of tourism experiences to be synthesised and evaluated in lab conditions.

Our annual dedicated research support budget averages **~£42K per annum**. The majority of this supports staff and PGR students to attend leading national and international conferences such as **Institute of Small Business and Entrepreneurship**, **Critical Tourism Studies**, **European Regional Science Association** and **IEEE International Conference on Robotics and Automation**. The remainder is typically split between external supervision costs, staff training, equipment costs and the annual 'Advances in Management and Innovation' conference and 'Advances in Management Working Paper Series Journal' which help ECRs and students showcase their research and foster new collaborations and opportunities for funding. Two competitively won **Santander Universities** grants with a combined value of **~£25K** facilitated international research outward mobility for **Sedgley** (tourism studies fieldwork & data collection) and a PhD student, Fuzi for a research visit to MIT which was instrumental in her successful research degree completion in 2017 and subsequent business start-up (<https://anitafuzi.com>).

In CSM, innovation activities fall under the remit of a dedicated Associate Dean for Innovation (ADI), while in the still growing School of Technologies the ADR manages both roles. Associate Deans are members of both the School Management & Planning Teams (SMPT) and R&I sub-committees, with the ADR chairing the latter. ADRs are members of the School and University Ethics Committees as well as the University R&I and Research Degrees Committees. In addition to setting the strategic direction of School, ADRs are responsible for encouraging and enabling research, for example by developing support for emerging researchers or coordinating peer review processes for Professors and Readers. The role also typically includes identifying opportunities for emerging researchers to collaborate on funding bids with more experienced colleagues, running training workshops and providing feedback on applications and conference papers. The ADR is also responsible for approving School research funding applications and for the School's performance against Institutional Measures of Success such as research degree completion rates, income targets and quality and quantity of research outputs. In CSM, a 1.0FTE Research Administrator supports research degrees, research ethics, the management of research projects and budget supervision, a role reflected at 0.5FTE in CST. CSM's Associate Dean (Innovation) has an additional two administrators allowing a combined R&I support team to bring together operational structures to increase opportunities for research knowledge transfer and collaboration with external partners. The success of this system is evidenced by the capture of **6** KTPs and SMART Partnerships, **7** KESS2 Scholarships and **16** HEFCW Strategic Insight Partnerships in the current REF cycle with a combined value of **£1.2m**. These support structures have improved the employability of research graduates by drawing on collaborative partnerships with industry.

Our R&I sub-committees report to the University R&I Committee, a sub-committee of Academic Board which is ultimately responsible for overseeing R&I policy, strategy, facilities, operations and performance. Similarly, our Research Degree Sub-Committees deal with all aspects of PGR student progression and support, and report to the University's Research Degree Committee (RDC) – a sub-committee of the University Research & Innovation Committee. Our Research Ethics Committees report to the University Ethics Committee and work in conjunction with their respective School RDCs to maintain and monitor standards, procedures and ethics governance

to safeguard research quality and integrity. This includes ensuring that research involving human participants conforms to the highest ethical standards and the general principles laid down in the Cardiff Metropolitan University Ethics Framework. Within CSM there are devolved ethics procedures for undergraduate and Masters' programmes that have a significant research element. To support these procedures CSM has 0.4FTE Research Degree and 0.2FTE Research Ethics Coordinator role-holders who chair the respective committees and report directly to the ADR. In the much smaller CST the ADR covers these roles for now.

### Facilities

The development and launch of CST in 2018 involved an estates and facilities investment of **£5m** on the Llandaff campus, which included a range of research labs (data science, cybersecurity, robotics and creative computing) and PGR accommodation. A further **£510K** was invested in facilities with research applications, including:

- A **£100K** Computer and Video Games Development Suite that directly supports applied research and knowledge transfer activities;
- CSM's Hospitality Suite, a multi-functional and reconfigurable event space fully refurbished during the assessment period at a cost of **£100K** and used for conferences, research seminars, business breakfasts and other research, engagement and knowledge transfer events;
- **£10K** in dedicated resources for doctoral research students, including new workstations, PCs and laptops;
- An annual subscription representing an investment approaching **£300K** during the assessment period in a Bloomberg Trading Suite which gives access to a wide range of financial databases, providing live and real-time market data for research purposes.

These investments in physical facilities are further enhanced by key institutional support systems such as PhD Manager and dedicated School Library and Information Services contacts dealing with resource content queries, interlibrary loans and research database management such as the FAME company and financial information database from Bureau Van Dijk. Cardiff Met's research repository, DSpace provides access to all the University's research and other scholarly output, while the Figshare platform allows the secure sharing of a wide range of data formats. Together with MS Teams, Figshare proved vital in successfully moving the 2020 AMI conference online during the pandemic. Our research has also benefited from access to other Universities' facilities, for example Cardiff University's Brain Research Imaging Centre (CUBRIC), a £44 million, purpose-built centre housing four magnetic resonance imaging laboratories.

## 4. Collaboration and contribution to the research base, economy and society

### Summary

Our research has informed the policy and practice of national, regional and sector stakeholders such as **Welsh Government, MakeUK, UK Industrial Strategy, OECD, Oxfam Cymru, National Cyber Security Centre, Sport Wales, Admiral Insurance, National Museum of Wales, Government Communications Headquarters (GCHQ), National Cyber Security Centre and Sony Technology**. We have engaged with over **100** research partners and collaborators with beneficiaries across business, academia, government and the third sector, and reached audiences beyond academia of over **5 million** individuals globally. Our research has directly impacted over **1,200 businesses** and third sector organisations, safe-guarding or creating over **2,000 jobs** and founding **25 new businesses**. It has delivered economic growth of **£187m**.

### Contributions to the economy and society

We have significant strength in near-market and applied research in the areas of enterprise and innovation (CLEC), events impact (WCTR), public policy and supply chain development (VFC),

and data science and robotics (AIRDSC). Our researchers engage externally with a full range of stakeholders and research users within the economy, including large corporations such as: **Natwest Bank** and **Admiral Insurance**; small businesses including through the **Federation of Small Business (FSB)**; **Welsh Government** and national governmental departments such as **UK Department for Business, Energy and Industrial Strategy**; the **National Museum of Wales**; trade unions and representative bodies such as the **CBI** and **Chambers of Commerce**; third sector organizations including **Housing Associations, Charities** and **Credit Unions**; and transnational agencies such as **NATO** and the **OECD**. In 2017 the School was awarded **Small Business Charter** status by the Chartered Association of Business Schools in recognition of activities which 'play an effective role in supporting small business, and local economies' across three pillars; i) small business support for growth, ii) involvement with a wider stakeholder engagement in the growth agenda, and iii) support for student start-ups.

We also have official regional and national partnerships with over **30** key stakeholders and organisations. They include **BT, Admiral Insurance, Capital Law, Visit Wales, Gambit Corporate Finance, Wilmott Dixon Construction, and John Lewis**. Partner projects include a bespoke 20/20 leadership programme for Admiral and work with Capital Law to inform productivity research. These bilateral partnerships provide us with access to business leaders and policymakers as research users, fostering organisational and economic impact through research-informed advice, strategic direction and workforce upskilling.

Many of these interactions are driven by our research centres. For example, the work of CLEC, which underpins one of our impact case studies in this submission, has benefitted a wide range of social enterprises such as **housing associations** and **charities**. Likewise, the VFC's work with [text removed for publication] and Welsh food supply chain companies to deliver process design improvements worth **~£3m** also underpins an ICS. The WCTR provides a vehicle for engagement with **Visit Wales** and the **Welsh Government Major Events Unit (MEU)**, feeding into its national and international events strategy. CST research clusters also collaborate widely. For example, the EUREKA Robotics Centre staff work with **Cardiff and the Vale University Health Board** on interactive healthcare robotics, and the Centre for Industry 4 and Blockchain Research cluster's staff work with **Barclay's Eagle Labs** and **Companies House** to develop blockchain based data security applications. Meanwhile, the Cybersecurity, Information Networks Centre works closely with the Welsh Government Department for Economy & Transport.

#### **Engagement with key research users and beneficiaries**

Partner organisations are active contributors to our research profile. For example, **NatWest Bank** actively promoted CLEC's 20Twenty Programme and its impact to their client base. Meanwhile, having benefitted from these research-informed management development programmes, multiple staff from **Admiral Insurance, CreditSafe, and GE Aviation** have commissioned bespoke sessions, disseminating best practice within their companies.

A significant example of engagement with key industry and policy stakeholders was provided by CLEC's Productivity Summit in March 2020, where the Hodge Foundation funded research by **Morgan, Kyaw, Clifton, Davies, Holtham** was presented. This industry-focused event attracted over 100 attendees with keynote contributions from **Make UK, Quay Pharma, and Proton PLC**. 'Effective Communication' estimated the media reach of the event to be **67,000** individuals for print media and **375,000** for broadcast media, as well as over **4.5m** online page views. In May 2020 CLEC also hosted a Hodge Foundation policy seminar in preparation for the 2021 Welsh Assembly Elections manifesto on Executive Agencies (economic policy delivery bodies) for the **Plaid Cymru** senior leadership and policy team.

WCTR research informs the practice of the **Association for Tourism in Higher Education (ATHE)**, the **Association for Events Management Education (AEME)** and the **Council of Hospitality Management Education (CHME)**. They have also facilitated two large scale multi-partner collaborative international **Erasmus+** projects since 2014: Co-operating for Leadership in Tourism (2015-17); and the Next Tourism Generation Skills Alliance (NTG, 2018-2022) - the

first pan-European partnership for improving collaborative relationships between higher education and the tourism industry.

**Bolton's** work partnering Sport Wales applied a Theory of Change approach as a systematic method for conducting research on Welsh Government sport and physical activity flagship programmes affecting **45% of the Welsh population**. The work has contributed to the delivery of the 2015 **Well-being of Future Generations (Wales) Act**<sup>4</sup> and forms the basis of a further impact case study returned with this submission.

Other examples of work with external bodies include research for **Oxfam Cymru** examining how in-work poverty and achieving 'decent work' for women in Wales might be addressed. This was commissioned by the **Institute for Welsh Affairs** policy think-tank and **Chwarae Teg** (a charity working in Wales to support the economic development of women) to make policy recommendations. The **£1.6m** Circular Economy Innovation Communities (CEIC) project (Beverly, **Brooksbank, Clifton, Murphy, Rees**) will deliver improved collaborative public service provision to over **2 million** Cardiff Capital and Swansea Bay City Regions residents. A partnership with the **Learned Society of Wales** and the Hodge Foundation's **£400K** 'Future of the Welsh Economy' research project, led to two international symposia: Portmeirion (2015) and Newport (2018). It brought leading academics together with Welsh policy makers to enable resolution on 'the Institutions Needed for Economic Development'. Meanwhile, **Clifton** and **Rees** were organising committee members for a joint venture with Cardiff University, Swansea University and University of Wales Trinity Saint David to host the prestigious **43rd Institute of Small Business and Entrepreneurship** (ISBE) conference (postponed to 2021). ISBE's remit is to provide a forum for knowledge exchange between researchers and practitioners. Cardiff Met will host its 'industry day'.

#### Reaching audiences beyond academia

During this REF cycle our staff have contributed pieces to key media broadcasters and broadcast outlets including: the BBC (**Minor, Morgan, Kyaw**); ITV (**Morgan, Parry**); The Times (**Clifton**); The Western Mail (**Clifton, Morgan**); and Premium Times (Nigeria), The Voice of America (**Aminu**). Other engagement with wider audiences includes articles in 'The Conversation', which publishes short, research-informed articles for a mass audience. During the assessment period staff have published **13** articles: **Clifton x 3; James x 3; Rowe & Parry x 2; Ren; Haven-Tang; Davies; Fallon; Hewage x 2; Carroll & Thorne**. These articles cover a diverse range of subjects including: sexism in the aviation industry; the role of culture in place branding; the royal family and tourism attraction; tax policy and the Panama Papers; fingerprints and biometric security; and the future of the Welsh steel industry. Together they have attracted over **250,000** unique readers to date, the majority of them from outside the UK (i.e., USA, India, Australia).

#### Indicators of wider influence, contributions to and recognition by the research base

Our staff regularly review grants for RCUK and other key funding bodies nationally and internationally. These include: **EPSRC; AHRC; ESRC**; Irish Research Council; **Horizon 2020** (Marie Skłodowska-Curie fellowships); **British Academy**; Polish National Science Centre and Ministry of Foreign Affairs, Denmark. **Clifton** also contributes to the *Innovation Caucus* (funded and co-developed by *Innovate UK* and the *ESRC* to champion the role of social science in innovation and enhance its impact).

We have also played a key role in shaping UK and international policy through consultations, providing evidence to select committees and serving as members of governmental advisory or steering bodies. Some key examples in relation to the economy, society and well-being include:

- **Clifton's** invitation to provide evidence in person to the **Welsh Government's Petitions Committee** in relation to the valuation of urban green infrastructure and the **UK Industrial Strategy Challenge Fund** via the Innovation Caucus. He also provided research and briefing services in relation to Brexit for the **Welsh Government**

**Framework Agreement** and undertook research to support the **Federation of Small Business (FSB) Wales'** Manifesto for the 2016 Welsh Assembly Elections.

- **Morgan** provided evidence to the **UK Industrial Strategy** consultation as well as to the **National Infrastructure Commission for Wales**. He also contributed a combination of verbal and written submissions to the **Welsh Government Economy, Infrastructure and Skills Committee** on the Economic Strategy for Wales.
- **Evans** was invited to join **The Senedd's**<sup>4</sup> cross-party group on poverty and contributed to the **UK Government Equalities Office Women and Gender Equality** Research Programme.
- **Holtham** was a key contributor to 'The Future of Regional Development and Public Investment in Wales' (**OECD**) and authored **Paying for Social Care**, an independent report commissioned by the **Welsh Government**.

Staff held advisory, steering body and other board positions in the following bodies during the REF period:

- British Gymnastics, Non-Executive Director (**Bolton**)
- Cardiff Central Enterprise Zone, Steering Board, Welsh Government (**Clifton**)
- Cardiff Capital Region City Deal Economic Growth Partnership, Board Member; CBI Wales, Council Member; World Leisure Academy, Senior Fellow (Invited); and Economic and Social Research Council (ESRC) Peer Review College, Member (Aitchison)
- Regulatory Policy Committee, Department for Business, Energy and Industrial Strategy; Welsh Government Valleys Task Force; Financial & Professional Services Sector Panel; and Welsh Government Learning Skills and Innovation Partnership (**Morgan**)
- Visit Wales Digital Tourism Business Framework Project Steering Group (**Haven-Tang**)
- Enterprise Educators UK, research development fund Advisory Board (**Clifton, Murphy**)
- Venture Wales, Board Member (**Brooksbank**)
- *Penderyn* Board Member (**Holtham**).

Staff have also engaged with key research users and audiences via editor roles and board membership of leading academic journals across a range of subject areas. For example, **Kyaw** is Managing Editor of the 'International Journal of Management, Economics and Social Sciences', while **Verma** is Associate Editor of the 'Journal of Work-Applied Management' and Aitchison was Associate Editor of Annals of Tourism Research until 2016. Lastly, Robinson is a Section Editor for the Journal of Global Sport Management and Associate Editor of Frontiers in Sports and Active Living.

Board membership includes: 'Growth and Change: A Journal of Urban and Regional Policy'; 'International Journal of Innovation and Regional Development' (**Clifton**); 'Leisure Studies' (**Haven-Tang**); 'Managing Sport and Leisure' (**Bolton**); 'International Journal of Procurement Management' (**Francis, Mason-Jones**); 'Journal of Travel, Tourism and Recreation' (**McLoughlin**); 'Managing Sport and Leisure', European Sport Management Quarterly and Sport Management Review, and 'MDPI Future Internet Journal' (Robinson) and 'Frontiers in Big Data' (**Hewage**). In addition, our researchers have guest edited thematic issues for the following journals: 'City Culture & Society'; 'European Planning Studies' (**Clifton**); 'International Journal of Event and Festival Management' (**Jaimangal-Jones**); 'Journal of Work Applied Management' (**Verma**); and 'Frontiers in Big Data' (**Hewage**).

Our staff have served as reviewers for over **50** international academic journals spanning: **economics and finance** ('Energy Economics', 'Economic Modelling', 'Small Business Economics'); **economic development and policy** ('Environment & Planning' A and C, 'Economic Geography', 'Regional Studies'); **tourism and hospitality** ('Tourism Management', 'Annals of Tourism Research', 'Leisure Management'); **human resource management** ('Personnel Review'); **operations management** ('Production Planning and Control'); and **data science** ('IEEE Access Bioinformatics').

<sup>4</sup> Welsh Government

Our researchers have also been invited to serve as examiners for **39 research degrees** at **26** universities in the period, including Aston University, Curtin University, Perth, University of the Sunshine Coast (Australia), Newcastle University and University of Sheffield.

#### **Wider research collaborations, networks and partnerships**

We have extensive international collaborative networks, including with: **Institut Arbeit und Technik** (Gelsenkirchen, Germany); **Melbourne University**; **National University of Ireland Galway**; **Atilim University** (Ankara, Turkey); **La Trobe University** (Bundoora, Australia); and **Norwegian University of Science and Technology**. We have hosted **14** visiting researchers from international institutions in the REF period, leading to ongoing collaborative research and high-quality jointly authored outputs. They include Juan Gabriel Tirado Ballesteros (**University of Alicante**); Anita Fuzi (**Széchenyi István University**, Hungary); Jani Kozina (**University of Ljubljana**, Slovenia); Rajitha Udawalpola (**University of Ruhuna**, Sri Lanka) and Alessia Usai (**University of Cagliari, Italy**). Our researchers have also reached out to research users and wider audiences through coordination of a variety of academic and practitioner conferences, including:

- Association of Events Management Education Conference (2017), organisers (**Davies** and **Jaimangal-Jones**)
- Institute of Small Business and Entrepreneurship (ISBE) Conference (2020) organising committee (**Clifton** and **Rees** postponed to 2021 due to Covid19)
- International Conference on Culinary Arts and Sciences (ICCAS), co-organiser (2019); Association for Tourism in Higher Education (ATHE) Annual Conferences (2016-19), as both lead and co-organiser (**Haven-Tang**)
- International Symposium on Logistics (ISL), International Advisory Committee (2015-present, **Francis**).

Staff have also delivered keynote presentations at a range of events, including:

- UKSim-AMSS 20<sup>th</sup> International Conference on Modelling & Simulation (2018, Cambridge, **Platts**)
- Association for Tourism in Higher Education Conference (2016, Cardiff, **Minor**)
- Edutainment 2019 and IEEE International Conference on Virtual Reality and Visualization, Belt and Road International Symposium on Emerging Information Technology (2019, Cali, Colombia, **Prakash**)
- Internal Business Law Consortium's Conference Brexit session, (2016, Cardiff, **Clifton**)

Finally, our staff hold international visiting positions at: University of Kyoto, (**Patra**); Liaoning University of International Business and Economics (**Ren**); Pontificia University Javeriana, Colombia; and Xidian University, Xi'an, China (**Prakash**). They have also delivered invited research seminars at many UK and international institutions including: Harvard Medical School, Office for National Statistics (**Khan**); Institute of Technology Sligo, Ireland (**McLoughlin**); University of Ljubljana (**Minor**); Institute of Social and Economic Research, Osaka University (**Patra**); Beijing International Studies University (**Ren**); Cardiff University (**Aminu, Patra, Clifton**); and Manonmaniam Sundaranar University, India (**Prakash**).