

## Unit-level environment template (REF5b)

**Institution: University of the West of England, Bristol**

**Unit of assessment: 17 Business and Management Studies**

**Section 1. Unit context and structure, research and impact strategy**

**1.1 Bristol Business School**

'Research with Impact' threads throughout our work within the Bristol Business School (BBS). Our vision has been to be internationally renowned for enterprising and practice-led teaching and research that benefit students and society. Our mission over the REF period has been to be an inclusive and innovative learning community, developing people and ideas to make a positive impact in the world.

Reflecting our strong relationship with a variety of stakeholders locally, nationally and internationally, we pride ourselves on being a partnership Business School where we encourage interdisciplinary research:

- that meets the needs of a healthy, sustainable economy and society;
- informs real-world teaching and learning and enhancing the student experience;
- builds upon existing working relationships with a wide range of stakeholders as well as developing new partnerships regionally, nationally and internationally.

Our vision and mission, together with a focus on partnership, guides the development of our research with impact, as evidenced through the variety of projects highlighted in section 4 and through our submitted impact case studies. Our researchers focus on global challenges to have real world impact, including research on: leadership to enable malaria elimination (**Case** - Case Study – 'Eliminating Malaria') and improving livelihoods in Laos (**Case** - Case Study – 'Livelihoods in Laos'); promoting women's equality (**Durbin** - Case Study – 'Women's Mentoring Scheme'); providing solutions to enable sustainability (**Hughes** and **Bradley** - Case Study – 'Sustainable Futures') and improving policy-making around the world (**Ritchie** - Case Study – 'Confidential Data').

To achieve this, we have established a common vision of quality research with impact and ensured researchers are well supported through targeting resources (see section 2). As well as our international work, exemplified through our impact case studies, we have also worked impactfully on national and regional agendas as evidenced through the work of **Bolden** and **Jarvis** in making strategic links to the NHS Leadership Academy and Golden Key; and **Oyedele** (with Big-DEAL colleagues) on driving down costs of improving thermal efficiency in existing buildings in the UK through Artificial Intelligence and the Internet of Things. **Oyedele** (and colleagues) has also helped to reduce waste from the UK construction industry through developing an intelligent Building Information Modelling (BIM) system.

Our research supports practice-led teaching and learning: our students are often engaged as research participants and partners. For example, BBS's 'Engaging the Workforce' conference (2018), chaired by **Edwards**, and sponsored by 'Engage for Success', the Construction Industry Training Board (CITB) and the Institute of Leadership and Management (ILM), engaged more than 200 managers and training professionals with research findings from CITB-sponsored research. **Vafeas'** bespoke interactive marketing masterclasses for Highlands and Islands Enterprise (2018/19) and **Vafeas** and **Hughes'** two-day marketing planning workshops for 150 SMEs in the South-West (2014) also link research with practice (see section 4).

Our vision going forward is aligned with UWE's new 2030 Strategy which identifies 'beacons of excellence' in digital futures, health and wellbeing, creative industries and technologies and sustainability and climate change resilience (see Institutional Statement). BBS is well-placed not only to make a key contribution to the beacons but is strategically positioned to have a key connecting role across them. In doing so we will continue to undertake world-class research

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across our Centres and Groups that addresses real world needs; promotes interdisciplinary, equality, diversity and inclusivity; integrates internationalisation, builds and sustains a vibrant postgraduate research community, and is integrated with teaching and learning, knowledge exchange, and partnership.

The three priorities are:

- Research excellence in business and management that is recognised as world-class, building and sustaining critical capacity and capability.
- Knowledge exchange and social, community and public engagement underpinned by partnerships that maximise the impact and return on investment of our research.
- An integrated approach to research and teaching, enriching the curriculum and consolidating our areas of excellence in business and management.

BBS is strategically positioned in a key connecting role where our success in international collaboration and impact makes us an important catalyst in embedding management expertise in cross-faculty research initiatives over the next ten years. For example, the Bristol Leadership and Change Centre (BLCC) is taking learning and expertise from work completed on Malaria elimination and developing livelihoods in Laos to tackling other global problems such as HIV prevention.

### 1.2 Centres and Groups

To achieve the strategic objectives identified in 2014, we held a re-orientation exercise of our Research Centres and Groups at the beginning of the current REF period. This exercise created six interdisciplinary clusters that had the capability to conduct high quality impactful research:

- The Bristol Leadership and Change Centre (BLCC)
- The Bristol Centre for Economics and Finance (BCEF)
- The Big Data Enterprise and Artificial Intelligence Laboratory (Big-DEAL)
- The Human Resources, Work and Employment (HRWE) Group
- The Applied Marketing Group (AMG)
- The Innovation, Operations Management and Supply (IOMS) Group.

An overview of each cluster is given below while more substantive information regarding collaboration and contribution is given in section 4.

#### 1.2.1 Bristol Leadership and Change Centre (BLCC)

Bristol Leadership and Change Centre (BLCC) explores the ways in which change is led, mobilized and sustained in complex and uncertain environments. BLCC has a leadership team of a Director (**Prof. Richard Bolden**) and two Deputy Directors (**Prof. Carol Jarvis** and **Prof. Gareth Edwards**). Those in the group that also have significant responsibility for research are **Prof. Alan Tapp**, **Prof. Peter Case**, **Dr Svetlana Cicmil**, **Dr Peter Simpson**, **Dr Harriet Shortt**, **Dr Olivier Ratle**, **Dr Neil Sutherland**, **Dr Yvette Morey**, **Dr Charles Booth**, **Dr Adrian Davis**, **Dr Guru Prabhakar** and **Dr Jenna Pandeli**. The Centre has six visiting Professors – Prof. Jonathan Gosling, Prof. Julia Verne, Prof. Alan Hooper, Prof. Steve Kempster, Prof. Clive Nancarrow and Prof. Iain Lovatt. The Centre also has a strong community of full and part time PhD students and early career researchers. This diverse community of academics draws on insights from fields including organisation studies, psychology, social marketing, philosophy and anthropology to explore leadership, management and organisational practice in a wide range of contexts.

To achieve the strategic objectives of the School, BLCC has purposefully taken a practical, cross-disciplinary and evidence-based approach to supporting individuals, groups and organisations, looking to develop their ability to adapt and thrive in complex and changing environments. Our research has had impact by demonstrating that developing 'good leadership' requires careful consideration of the complex relationship between leaders and followers, as well

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as the organisational and cultural contexts in which they find themselves. We have also shown that identity, ethics, language and power are just some of the factors that shape and influence leadership processes, outcomes and interpretations.

We have shown impact through partnership with a range of organisations, including the NHS, Public Health England and the Department of Transport, to produce positive impacts on health and wellbeing. For example, the work of **Bolden** and **Jarvis** as independent evaluators for the NHS Leadership Academy's 'Building Leadership for Inclusion' initiative. The findings and conclusions from this work have fed directly into the Academy's input into the NHS People Plan and its response to the disproportionate impact of Covid-19 on BAME staff. Further impact has come from work led by **Tapp** which has informed policy and practice on road safety in Welsh, Scottish and the Westminster Governments. This includes work on public opinion and driver compliance with 20mph limits, the Wheels Skills and Thrills project, part of the UK Department for Transport's stable of Young Driver Projects, and recognition from Public Health England through funding research examining public opinion to old age and end of life care planning. In a more international context, **Case's** work has led a number of highly impactful organisation development interventions in South-East Asia and southern Africa for the Malaria Elimination Initiative, in collaboration with the University of California, San Francisco and the Bill and Melinda Gates Foundation.

Critical, reflective and engaged scholarship is at the heart of what BLCC does, and feeds directly into degree programmes and professional/executive education. For example, research led by **Edwards** with the Construction Industry Training Board (CITB) on engagement and leadership has fed into a programme, currently under development, to enhance skills for leaders in the construction industry. This links back to the aims of our School strategy which highlight the need to transfer research into learning opportunities.

### 1.2.2 Bristol Centre for Economics and Finance (BCEF)

BCEF, a home for researchers in economics, accounting and finance, has a Director, **Prof. Felix Ritchie** who works with others with significant responsibility for research – **Prof. Daniela Gabor**, **Prof. Cherif Guermat**, **Dr Tom Ivlevs**, **Dr Ismail Adelopo**, **Dr Nadia Vanteeva**, **Dr Peter Bradley**, **Dr Danielle Guizzo Archela**, **Dr Timothy Hinks**, **Dr Jo Michell**, **Dr Chris Carr**, **Dr Eleni Papathanasopoulou**, **Dr Ian Smith**, **Zhifeng Chen** and **Damian Whittard**. The Centre has four visiting Professors from academia and industry – Jeremy Batstone-Carr, Independent Consultant, Edward Fullbrook, Real-World Economics, Nick Griggs, Paul Keenan, Keenan Regulatory Consulting Ltd. The Centre also has a strong community of full and part time PhD students and early career researchers.

The BCEF research team has been an important contributor to the achievement of the School's strategic objectives under four key research themes: *Modelling the Economy*; *People, places and society*; *Business monitoring and evaluation*; *Understanding modern financial systems*.

BCEF researchers take a wide range of approaches to the complex challenges involved in *Modelling the Economy*. A team of macroeconomists study growth, trade, the informal economy, and the impact of Brexit. Regional economists work collaboratively with organisations in the South West to understand spatial differences and rural/urban effects. Several researchers study the economies of developing countries and a large group lead research on sustainability and the issue of the 'circular economy'.

Research under *People, places and society* examines the relationship between the health, wellbeing and happiness of an individual and how the demands of their work and career has become an important issue to employers and employees. BCEF researchers specialise in migration, low pay and inequality, well-being, and the development of education systems. The sustainability team in BCEF use their expertise in pro-social consumer behavior to run engagement conferences for academics, business and the general public.

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Staff working in *Business monitoring and evaluation* look at how society views businesses, the way they operate, and their effects on people and the environment. Across sectors, BCEF researchers study corporate social responsibility, financial regulation, business modelling, productivity and data management. Within sectors, BCEF staff have particular interests in agricultural production in developing countries, and in financial management of charities.

The theme focusing on *Understanding modern financial systems* explores the changing role of money, banks and financial systems. Researchers have an international reputation for highlighting the risks in the growth of shadow banking, in understanding the increasing financialisation of developing country debt, and in the challenges of 'green monetary policy'. BCEF also has a team of analysts who focus on econometric modelling of financial markets, while others study the role of developments in fintech.

Underlying these areas is a deep collaborative expertise in data collection, quality analysis, data management, and the use and effective presentation of data. BCEF researchers regularly advise organisations, particularly in government, on how to manage, exploit and present their data (examples include Eurostat, the Office for National Statistics, the Statistics Authority, HMRC, UK Data Archive, Scottish Government, Administrative Data Research UK, UKRI, NHS Digital, Australian Bureau of Stats, Statistics Canada, the European Commission, the Low Pay Commission and the TUC). BCEF staff are regularly asked to give talks on economic matters to non-specialist audiences and the media.

### 1.2.3 The Big Data Enterprise and Artificial Intelligence Laboratory (Big-DEAL)

A key development in the achievement of our strategic aims has been investment in infrastructure in order to grow our big-data research laboratory. The Big-DEAL group works closely with a range of organisations, including Tier-1 contractors (e.g. Costain Limited, Winvic Construction Limited, and Balfour Beatty), building management system original equipment manufacturers (e.g. Schneider Electric), and SMEs (e.g. Waste Plan Solutions, Sustainable Direction Limited, TerOpta, OneBigCircle). The Big-DEAL Director, **Prof. Lukumon Oyedele**, who is also the Assistant Vice-Chancellor for Digital Innovation and Enterprise, works with a varied team of researchers to develop cutting-edge solutions to support businesses. Members of the Big-DEAL group with significant responsibility for research include - **Dr Anuoluwapo Ajayi**, **Dr Lukman Akanbi**, **Dr Olugbenga Akinade**, **Dr Muhammad Bilal**, **Dr Manuel Davila-Delgado**, **Dr Hakeem Owolabi** and **Dr Xiaojun Luo**.

Big-DEAL's mission, in line with that of the School, is to develop a world-leading cross-disciplinary research laboratory that leverages novel digital technologies to address current needs and future challenges. The laboratory also aims to develop commercially sound digital solutions that drive up commercial competitiveness and productivity, and that improve the quality of life and well-being of society. Areas of research expertise include: artificial intelligence (machine learning, deep learning, knowledge-based systems); big data analytics; immersive technologies (augmented reality and virtual reality); simulation, mathematical modelling and optimisation; the Internet of Things (IoT); and Digital Twins and Building Information Modelling (BIM).

### 1.2.4 Human Resources, Work and Employment (HRWE) Group

The HRWE group undertakes research oriented towards human resource management and employment from a critical perspective. Group members conduct research in five specialist areas: equality, diversity and inclusion (EDI); HR and work; employment relations; labour markets; and pedagogical research. HRWE is led by **Prof. Susan Durbin** supported by others with significant responsibility for research - **Prof. Hazel Conley**, **Dr Aykut Berber** and **Dr Hugo Gaggiotti**, and a strong community of full and part time PhD students and early career researchers.

The group explores key human resource, work and employment research areas through a critical, collaborative and intersectional perspective. EDI researchers, for example, focus upon the gendered nature of work, men and women working in non-traditional employment roles,

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gender pay gaps, LGBT pay gaps, the gendered construction of the meaning of work, corporate egg freezing, the under-representation of women in senior management, female part-time managers, inclusion at work, the psychology of ageing, planning for later life/end of life, women's corporate and professional networks, HR practitioners, equality and diversity and the role of women volunteers.

Those with an HR/work perspective are involved in research with a focus upon manager-employee interactions, line managers and performance management, newcomer and socialization theory, project-based work, mentoring support, organisational resilience, liminal spaces of work, mobility and commuting, HRM in SMEs, reduced hours working at executive and senior levels in organisations, critical perspectives on management.

Employee relations research topics includes employee relations and trade union strategies, the problems with low pay, apprentice pay, occupational regulation in the UK and trade union representation, while those who take a broader labour market perspective are concerned with entrepreneurialism, digital nomads, digitalisation, sociology of the professions, flexible labour markets (zero hours contracts), and the Public Sector Equality Duty.

Pedagogical researchers share an interest in the responsible management of education, ethics, participation and emancipation, student low pay, student academic skills, student perceptions of impact on transition from foundation to university degree and student attitudes to working in the third sector.

A key example of how the group is impacting on practice is the development of a mentoring scheme ('alta', see Case Study – 'Women's Mentoring Scheme') which addresses the under-representation of women in professional roles, in the context of a chronic industry skills shortage in the UK aviation and aerospace industry, led by **Durbin**.

### 1.2.5 Applied Marketing Group (AMG)

The ethos of the AMG is that, for an applied subject such as marketing, it is crucial to maintain close links and collaborate with the practitioner community. AMG is led by **Dr Mario Vafeas** (previously co-led with **Prof. Tim Hughes**), under whose guidance the group undertakes firm mentoring, consultancy, short courses tailored to industry need, and research, including via the KTP scheme.

Examples of the research carried out by AMG include the collaborative project with BCEF that has established new frameworks for co-creative sustainable development in organisations (Case Study – 'Sustainable Futures'); on-going research into value maximization in business-to-business relationships; research into the impact of the digital economy on business and consumers, including ethical issues; and research into environmentally-responsible and sustainable behaviour in retail, events, and tourism.

A key aim of AMG research is to ensure that, besides contributing to the development of theory, it has a direct impact on business practice. For example, research into business-to-business relationships has been disseminated regionally, nationally, and internationally through keynote speeches, podcasts, and workshops with organizations such as Bristol Media, the Data and Marketing Association, Design Business Association, Chartered Institute of Marketing, and the Agency Management Institute in the USA.

The Group delivers a variety of short courses including the Digital Marketing Institute's professional diploma in digital marketing as well as courses in strategic marketing planning and marketing communications to SMEs. With backgrounds in industry prior to entering academia, Group members ensure courses are relevant to the challenges faced by business and collaborate closely with industry to enhance teaching and improve student employability, including the establishment of several 'Course Connects' where firms contribute to content development, teaching, and assessment. **Vafeas**, as a Member of the Regional Council (West and Wales) for the Data and Marketing Association, provides a catalyst for a series of events

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introducing students to the range of careers in marketing and the opportunity to meet local employers.

### 1.2.6 Innovation, Operations Management and Supply (IOMS) Group

The IOMS team is co-led by **Prof. Wendy Phillips** and **Prof. Vikas Kumar**, supported by a group with significant responsibility for research - **Prof. Mohammed Saad, Dr Mel Smith, Dr Kyle Alves; Dr Amit Mitra, Dr Dharm Kapletia, Dr Ximing Ruan** and **Dr Jianxiang Bi** and a strong community of full and part time PhD students and early career researchers.

IOMS is formed around the core disciplines of innovation, operations management and supply chain management with particular expertise in the areas of redistributed manufacturing, lean, industry 4.0, food supply chains, sustainability, procurement, complex networks, process modelling and innovation. The group has been crucial in connecting our research to collaborative networks led by **Phillips** working alongside practitioners, regulators and policy-makers to reconsider our approaches to manufacturing, particularly location and scale. The COVID-19 pandemic has revealed the lack of resilience in global production systems supplies, emphasizing the need for more distributed and localized supply networks. The group also has a strong focus on internationalization and colleagues are involved in several international projects funded by Newton Fund, Royal Academy of Engineering, British Council and British Academy working with collaborators from Global South, Europe and Asia. For example, **Kumar** is working with Brazilian, Vietnamese, Thai and Colombian colleagues to address the sustainability challenges of the food sector in these regions.

### 1.3 Research Integrity

Our School reflects the strong culture of research integrity that has been developed through a combination of robust policies and procedures, training and support, supervision and management, including an updated University Code of Good Research Conduct, which includes a robust Research Misconduct Procedure. The School is represented on a recently-established Research Governance group who work with the Faculty Research and Knowledge Exchange Committee (other members of which are highlighted in section 3) to ensure all research projects within the faculty are adequately recorded on the University's Research Governance Record. This provides a self-assessment check-list to ensure relevant integrity matters are considered and signposts information and guidance relating to key research governance issues, including data protection, research data management, GDPR and research ethics. Induction on the RGR was provided when the scheme was introduced in 2019, and is refreshed periodically, most recently at the beginning of 2019/20.

All research projects are required to complete an ethics assessment form and projects involving human participants require submission to the Faculty Research Ethics Committee (and may be referred to the University Research Ethics Committee for full approval). All staff including PGR supervisory teams are required to complete on-line ethics training as a condition of submitting proposals, receiving internal funding or supervising PGRs. As a School, we adhere to the University's Data Protection Standard for Research which defines the framework within which personal data processed for research purposes must be conducted and to comply with relevant data protection requirements. All research involving the collection or use of data, including postgraduate research, requires completion of a data plan before it commences.

### 1.4 Open Research

UWE is committed to the aims and principles of open research and encourages researchers to explore the benefits of using open practices in their research. In BBS, we support open research initiatives set out by the University through the Faculty RKE committee, working closely with the library services, including:

- promoting the development and implementation of the Open Access Policy and Guidance
- ensuring that staff and PGR students engage with the institutional Research Repository by providing training at School, Faculty and University level
- regularly reminding colleagues to deposit their work on the ePrints data repository

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- supporting the implementation of ORCID ID for all researchers and promoting the SHERPA compliance tool.
- funding open-access publishing, supplementing UKRI resources.

**Section 2. People****2.1 Overview**

The School's research strategy encourages ongoing improvement in the quality of research as evidenced through peer-reviewed outputs that have real-world impact, including links to learning and education. Initiatives aimed at supporting staff to enable this include:

- five weeks built into workloads for scholarly activity for all staff.
- a scheme to support staff enrolled on PhDs with fees waivers and dedicated time.
- support for early career researchers through the annual Vice-Chancellor's awards.
- further workload support provided annually through our Research Excellence Award (REA), which aims to support staff who can demonstrate the capability or potential to undertake high quality research and produce high quality outputs based on collaboration and potential impact.

These initiatives, from doctoral study through to early career and mid-career researcher support are highlighted in more detail below.

**2.2 Developing Doctoral Studies**

Our strategic vision of engaging in research with impact and in partnership with external organisations and communities extends to our PGR community. To ensure that this is implemented we have embedded six key initiatives within the School:

1. A focus on attracting part-time home and EU students (which now comprise 50% of our cohort). We are particularly keen to supervise part-time students as they typically focus on 'live' organisational issues that often generate collaboration and impact.
2. A newly developed DBA (professional doctorate) programme, which started in October 2020, as part of our strategic objective to increase research on relevant issues in organisations that has a clear route to impact.
3. A 50:50 industry/Faculty funded PhD bursary scheme with four such scholarships having been awarded so far in collaboration with Bristol City Council, Power to Change (a charity supporting community businesses), Oxford Innovation Ltd and New Concept Information Systems Pvt. Ltd.
4. Investing in a new cohort of 10 fully funded PhD studentships; six have already been awarded and the remainder are due to start in October 2021.
5. An internal scheme to support staff undertaking doctoral study. The scheme's aim is to allow staff to engage in continuing professional development through doctoral research in priority areas and transfer their research back into teaching practice. Four BBS staff have been supported to do a PhD in this way in the past 5 years.
6. An industry mentoring scheme to guide doctoral students, in addition to general UWE provision of career consultations. For example, a mentoring programme has been provided by Dr John Manley, a former research director of the HP Cloud, since 2015. This comprises workshops attended by 4-7 doctoral students at which he works intensely with the group to reflect on their career ambitions as well as providing insights into what the world of industry and practice expects of a PhD graduate and what the opportunities are for such graduates to have a fulfilling research career outside of academia.

Success in implementing our PGR initiatives is evident in the 54 PGR completions in the REF2021 period 2014-2020, up from 31 in the last REF period. This marked increase owes much to the strategic objective of BBS to ensure high quality of supervision. We have a robust and compulsory supervisory training programme for all academics involved in doctoral supervision with additional workshops for those specifically appointed as the Director of Studies

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for each student. Courses providing information and updates on UWE PGR regulations and procedures must be undertaken every three years.

The Graduate School at UWE provides a wide range of courses aimed at PGR development, mapped against the Vitae Research Skills Development Framework. PGR students are typically given opportunities to teach as part of their academic development, and supported to do so with training. Teaching commitments are regulated and limited in order to ensure that the teaching undertaken is developmental rather than a hindrance to successful and timely completion. Every effort is made to ensure that the allocated teaching matches the doctoral student's area of expertise, reinforcing the School's ambition to provide research informed teaching. 'Preparing to teach' workshops are integrated with both the PGR Induction programme and the Graduate School's Researcher Development offering.

Each PGR student is affiliated with a University-recognised Research Centre and/or Research Group, to ensure their integration within the Faculty's overall research activity and environment. There are two, sizable, open-plan PhD offices at the heart of our new building (see section 3) with a fully IT equipped desk dedicated to each full-time PGR student. This means that students are co-located, and work in the vicinity of their supervisors and other academics. The PGR cohort is engaged in all areas of Faculty research operations and has representatives as active members of Faculty Research Degrees Committee, Faculty Research and Knowledge Exchange Committee and the Faculty Research Degrees Committee.

BBS has, for almost 20 years, successfully run an annual doctoral symposium (now known as a Doctoral Research Showcase) with PGRs presenting their work in poster and PowerPoint formats. With a long tradition and excellent attendance from across the Faculty, University and beyond, these events are always well received and regarded as friendly, supportive and enjoyable gatherings at which we promote PGRs' work and learn from each other. A supervisor of each presenter takes part in the Showcase as their discussant, explaining the broader context of the project and how it fits with the portfolio of the given Research Centre or Group. As well as offering vital developmental value to our postgraduate researchers, the event also provides an opportunity to show how our doctoral research contributes to the Faculty's research ambitions.

The School provides doctoral candidates with networking opportunities by:

- Involving them in events which give them opportunities to meet academics and practitioners outside of UWE and open up possibilities for new or related research ideas or career paths. e.g. conferences such as the International Studying Leadership Conference (ISLC) and Distinguished Address series.
- Making sure PhD students are on circulation lists announcing internal (and external) research seminars, teaching and learning workshops and events.
- Organising tailored events for networking with fellow PhD researchers across UWE and beyond, for example, an annual PGR Residential Summer School, a four day retreat available to PGRs from UWE and other HEIs in the region with a structured developmental programme covering personal, research and career developmental needs. The programme is led by UWE and delivered collaboratively by senior academics and training consultants.

### 2.3 Developing Early Career Researchers

The University provides Vice-Chancellor's Early Career Researcher (ECR) Development Awards to particularly promising staff. These awards are worth up to £15,000 to support projects designed to accelerate their research trajectory and position them to bid for significant external funds. The award can be used to cover short-term salary costs, replacement teaching, research assistance, technical support, equipment, consumables or travel and subsistence. During the REF cycle, 20 members of BBS staff benefitted from these awards. Some early examples include **Vafeas** (2014/15), who was granted £9k to research 'Value co-creation and its influence on client-agency relationships' and **Bradley** (2014/15), who was granted £15k to research 'Understanding and assessing businesses models for sustainability'. Both these researchers



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now have significant responsibility for research, one being a research group lead (**Vafeas** for the AMG) and the other contributing to an impact case study (**Hughes** and **Bradley** - Case Study – ‘Sustainable Futures’). Other examples are **Michell** (2015/16), awarded £15k to research ‘Developing a multi-agent framework for monetary macroeconomic analysis’ and **Dr Selen Kars** (2017/18), also awarded £15k to research ‘Innovation as everyday practical coping: A framework for leveraging innovation in difficult circumstances’.

In addition, BBS encourages ECRs with opportunities to collaborate across faculties to create inter-disciplinary teams to tackle real world issues. Some examples include workshops where BBS academics are introduced to colleagues in the three other UWE faculties at research speed dating events. Resulting collaborations include; **Green** (BBS) and **Presence** (Arts and Creative Industries) on ‘Assessing the impact of Covid-19 on Bristol’s Film and Television industries’, **Lerigo-Sampson** (BBS) and **Bray** (Applied Sciences) on ‘An interdisciplinary approach exploring the mental health and well-being of social media influencers (SMIs)’ and **Tava** (Applied Sciences) and **Green** (BBS) on Advanced Ethical Models of Data Governance (each were awarded £5k as seed corn funding). These projects also reflect BBS’s response to a connecting and collaborative role in responding to UWE’s 2030 research beacons with links to all four beacons - digital futures, health and wellbeing, creative industries and technologies and sustainability and climate change resilience.

Support is also provided for ECRs through:

- formal mentoring schemes like the UWE-wide Women in Research Mentoring Scheme (WRMS) - female early career researchers in particular are encouraged to participate.
- department-wide informal mentoring whereby early career researchers are matched with a senior colleague on appointment to share knowledge and experience.
- workshops throughout the academic calendar specifically for ECRs that look at topics such as ‘Bidding for Small Grants’, ‘Grant Writing’ and ‘Writing for Academic Publication’.
- time for research for ECRs can be secured through the annual review of workload whereby they will secure an additional half a day a week for research activities.
- the University’s Researchers Forum which provides a platform for research grade staff to consider matters of common interest, researcher-specific development activities and a voice for the researcher community (**Monyei** from the Big-DEAL group has been on the Forum Steering Group during the REF period)

### 2.4 Developing Staff with Significant Responsibility for Research

BBS seeks to appoint and support research active staff through career development opportunities and workload allocation for research purposes. This has enabled our School to thrive over the current REF assessment period with the increased level of staff and outputs. This is evident in the increased number of staff whose work is being submitted to this unit in REF2021; 33 FTE staff were submitted in REF2008, 34.1 FTE staff in 2014 and for REF2021 we have 50.5 FTE individuals with significant responsibility for research (SRR). This growth reflects the strategic objective of BBS through encouraging staff to develop their research with impact which, in turn, we reward with promotion to Associate Professor (13 promotions in the REF period) and Professor (seven promotions in the REF period) or through increased levels of time for research and related activities (within our annual review), enabling staff to be considered to have SRR within the School.

As alluded to above, the School invests significant resources every year in the form of Research Excellence Awards (REA) where it invites applications annually to reward staff for their research achievements and future research plans. This annual review is consistently guided by our strategy for impact and partnership, so individual researchers that can show evidence of impact, and collaboration will be supported with equivalent or more time for research. The focus of this annual review has begun to morph towards our next strategic objectives for 2030 which involve connection and collaboration in research with impact associated with the four research beacons highlighted in section 1.

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In addition to the annual review, BBS is also proactive in using personal development reviews alongside coaching and mentoring to ensure staff time for research is planned and prioritised in the context of overall workloads and time management, including scholarship and internally-funded time. From these reviews, opportunities for research staff to become involved in CPD and Professional Executive Development are highlighted, encouraged and funded.

A third strand to the development of collaborative and impactful researchers is support for coaching and mentoring, this includes the Women in Research Mentoring Scheme (WRMS) which aims to promote and facilitate professional development for women researchers working at UWE, helping them to develop high quality and impactful research, and encourages them to reach senior research roles. This is a University-wide scheme that has benefitted 15 staff from BBS over the REF assessment period, including some that are considered to have significant responsibility for research - **Morey, Pandeli** and **Guizzo Archela**. Other experienced staff have contributed to this scheme through being mentors – **Jarvis, Edwards, Conley, Phillips, Kumar, Durbin** and **Shortt**. Four of these researchers have also been active on the institutional steering committee for the scheme – **Shortt, Edwards, Jarvis** and **Durbin**.

Additional, significant investment has been made to recruit internationally-regarded staff to increase our level of high-quality research with impact. Indicative of BBS's strategy of promoting research talent, the School was successful in securing a Wallscourt Fellowship as part of a University initiative to invest in areas of research strength. Appointees have at least 50% of their time devoted to high quality research. BBS's Wallscourt Fellow (**Carr**) was appointed in an area of strategic priority, Financial Technology, to explore various aspects of cryptography, blockchain technology, and disruptive financial technologies, as well as to help address a skills gap in an emerging domain.

### 2.5 Equality, Diversity and Inclusivity (EDI)

The University's goal is to 'make UWE Bristol a supportive and inspiring place to learn and work - somewhere where diversity of experience and perspective is encouraged and learning and research is shared and accessible'. Our School has an EDI task force and supports the University's vision on EDI in a range of initiatives that reflect the importance of EDI within research conducted within the School, including a Single Equality Scheme, Athena SWAN, being a Stonewall Diversity Champion, being a Disability Confident employer and a Mindful Employer.

BBS advocates an equality and staff development agenda via a range of training and support processes. For example, staff complete a mandatory on-line equality and diversity training program, and are able to attend specific training relating to EDI issues such as Unconscious Bias, Diversity in Practice – Working with LGBT+ Communities, Disability Confident, Sexual Harassment in the Workplace and Understanding Bias.

Individual circumstances that may impact on research are also taken into account. For example, if a staff member is considered to have a recognized disability (after an occupational health assessment) their line manager makes reasonable adjustments to their workload and working practices. For research-active staff this may include a reduction in teaching commitment to enable the individual to focus on their research. Staff members who return from extended sick or compassionate leave are phased back into their full hours which, if they are researchers, usually means their teaching workload is reduced for a period.

Some BBS research work include strong links to issues of equality and inclusion. An example includes ongoing research on gender equality in organizations (**Conley** and **Durbin** plus the wider HRWE Research Group) as represented by one of our impact case studies (Case Study – 'Women's Mentoring Scheme'). **Bolden** and **Jarvis** have been involved in research that is tackling issues of inclusion in the NHS and in the City of Bristol (see sections 3 and 4). Staff have also benefited from, and contributed to, the University-wide initiative to support women researchers, the Women in Research Mentoring Scheme, noted above.

## Unit-level environment template (REF5b)

## Section 3. Income, infrastructure and facilities

## 3.1 Income

In order to deliver the strategic goals of BBS we created a target to double external research funding from £2.5 million (over the previous REF exercise) to £5 million. We have achieved and exceeded this target: by the end of the REF2021 cycle we have a total research income of £7.5 million. This funding underpins our objective to support research with impact, strategic partnerships, collaborative connections and sustainable networks. Furthermore, as evidenced in the CABS 2020 report, BBS has consistently been in the top five business schools over the last five years for income generation and is currently first amongst the Alliance Group of universities, 11<sup>th</sup> among the non-affiliated business schools and 20<sup>th</sup> overall in the UK

(<https://charteredabs.org/wp-content/uploads/2020/05/77403-CABS-Research-Income-Report-2020-WEB-final.pdf>). The School monitors funding success through income secured per annum from external sources, measured in absolute terms and per FTE academic staff number for each Research Centre, laboratory and group. These are key performance indicators that will continue to be monitored in the delivery of our 2030 research strategy.

Since 2014, our strategy has been to target funders that promote collaboration and impact. We have had success in bids to the Bill and Melinda Gates Foundation, ESRC, UK Innovate, the British Academy and the Knowledge Transfer Partnership programme, for example, all of which identify collaboration and potential impact as factors in assessing grant applications. We have achieved this level of success through the provision of ongoing support for Centres, the laboratory and groups in the development and maintenance of user and other engagement networks, through the Research Excellence Allocation (REA) process to target individual achievement, and staff development and appraisal processes to bring on emerging researchers. We have monitored this continued success through Research Centre, laboratory and group quarterly reports at our Faculty Research and Knowledge Exchange Committee meetings chaired by the Faculty Research Director.

Detailed in various parts of this statement is the long-running success of **Oyedele** and colleagues from our Big-DEAL Laboratory, who have secured in total, with partners, more than £11.5 million in funding. This includes a number of large grants from Innovate UK (total £5.5m), the Department for Business, Energy and Industrial Strategy (DBEIS) (total £1.5m), the Technology Strategy Board (£1.1m) and EPSRC (£1.5m). Further to this is the continued success in gaining income (total with partners £1.1m) for the research by **Case** on malaria elimination, HIV prevention and livelihoods in Laos, which has been highlighted elsewhere in this statement and has led to two impact case studies.

Further examples of long-running success include the work of **Gaggiotti** (HRWE) who has been awarded sustained external funding for his research work on the Mexican borderlands, including a British Academy Award under the Newton Mobility Grants Scheme in 2015 and a further grant under the Newton scheme in 2016 for research to apply organisational ethnography to study business and organising in the American-Mexican borderlands. The aim was to consolidate research capacity in Mexican borderlands and to lead the development of a formal education programme, with the ultimate objective of promoting socio-economic welfare in Chihuahua by exploiting the knowledge of professional organisational practices to help to solve the social and economic needs of families, children and young people in Ciudad Juarez.

Other notable bidding successes include:

- £1.7m EPSRC Redistributed Manufacturing in Healthcare Network grant (**Phillips**, IOMS, 2017)
- £1.2m from the European Commission to research 'Public procurement of innovative sustainable energy solutions' (**Saad**, BCEF, 2014)
- funds for numerous projects totaling £650k (**Ritchie**, BCEF)
- funds for research on policy and practice in road safety and other wider transport management issues totaling £617k (**Tapp**, BLCC)

## Unit-level environment template (REF5b)

- funds for research on gender equality research totaling £375k (**Conley, Durbin**, HRWE)
- £250k for **Gabor's** (BCEF) research on the shadow side of banking
- £240k for **Akinade's** (BIG-Deal) research on Computer Vision and the Internet of Things (IoT) for Personalised Site Monitoring Analytics in Real-Time (CV-SMART) towards Behaviour-Based Safety
- several projects worth £207k in total for research work in the public sector on leadership and change (**Bolden, Jarvis**, BLCC)
- a new one year project from the British Academy/Leverhulme Small Research Grant Scheme for **Gaggiotti** (HRWE) to study how isolation and homophily affect international workers and expatriates (2020)

Reflecting our strategic objective to achieve excellent research with a clear route to impact, we have had notable success in gaining Knowledge Transfer Partnerships (KTPs), in particular Management KTPs. Already mentioned is our award winning KTP by **Hughes** with Viper Innovations and another with Dycem Ltd. Further success has been secured by **Smith, Alves** and **Edwards** looking at technological change, supply chain management and leadership in a growing SME, bringing our total income from KTP to £385K.

### 3.2 Infrastructure and Facilities

BBS is based in a £55m building, opened in 2017, which offers learning spaces for individual and group study, interactive learning environments and conference rooms. In total, we have a 17,200m<sup>2</sup> space serving 5,500 students and containing 148 offices over 7 floors. For PGR, state-of-the-art facilities are provided, with dedicated office space, IT support, and access to the Library. Reflecting our strategic objectives, there is dedicated space for staff, students and businesses to meet, collaborate and form new partnerships. Businesses can take advantage of facilities that include rooms available for hire and we can help cater for events, conferences, and training. For individuals who require a semi-permanent base, such as those taking part in self-study learning sets for various business programmes, the Business Engagement Centre offers an executive education suite and meeting spaces. Our research staff and students therefore have the opportunity to meet and collaborate with real businesses using the School's facilities. We have also invested in a new, dedicated space for the Big-DEAL Research Laboratory, our Business Advice Clinic and the Bristol Business Engagement Centre (BBEC) (highlighted in section 3.3 below).

Research development is led and supported through the School's network of senior managers and professional service staff headed by the Faculty Executive Dean and Associate Dean for Research, supported by our Director of Research, Research Centre Directors and Group heads, our ethics committee chair and research governance lead. This network meets regularly throughout the year to review and support progress in achieving our research strategic objectives.

A University-wide Research, Business and Innovation (RBI) service supports all research activities, including support to staff to identify funding opportunities, assistance with bid preparation, the provision of professional development through a Researcher Skills Development programme, facilitation of business and public engagement, and advice and support on intellectual property, technology transfer, research integrity and ethics.

### 3.3 The Bristol Business Engagement Centre (BBEC)

We have taken concrete steps to ensure that our external engagement portfolio remains a core part of the academic life and functioning of BBS, as opposed to a discrete standalone function. For example, the establishment of the Bristol Business Engagement Centre (BBEC) in 2016 ensured a deliberate, hybrid, focus on growing commercial income through Executive Education (derived from teaching and research programmes) while at the same time ensuring that the linkages formed with industry become infused into the life of the school around curriculum delivery, research application, and academic staff engagement. Examples include:

## Unit-level environment template (REF5b)

- Taking a conscious decision to reduce the use of external consultants, and concurrently focusing on ensuring greater participation of academic staff in executive education delivery. For example, all our open programmes are delivered exclusively by UWE staff which promotes our strategic objective of linking research directly to teaching and practice.
- Initiating and growing a network of Business and Industry Fellows whereby senior industrialists support the growth and development of our students, staff, and academic programmes on a *pro bono* basis, essentially acting as knowledge exchange agents, encouraging practitioners to engage in our research
- Piloting the rollout of Subject Business Associates (now Department External Engagement Leads) whose role is to support external engagement at the departmental level; again helping to link research to practice and explore pathways to impact.
- Launching Course Connect, an initiative that connects relevant external organisations (e.g. formed through commercial relationships) with key subject areas, ensuring a consistent and sustainable bi-directional relationship between the curriculum/students and external organisations operating in real world contexts. The partner organisations in return gain access to a range of incentives including discounted attendance on executive education programmes and facilitated access to the School's research base.

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

BBS takes great pride in the collaborations and partnerships that are fostered in order to deliver research with impact and to ensure we make a positive contribution to economy and society. Each Research Centre, laboratory and group collaborates in a multitude of ways through interdisciplinary research with a broad array of partners seeking to make impact. Examples from each are highlighted below:

#### 4.1 Bristol Leadership and Change Centre (BLCC)

Examples of collaboration and contribution within BLCC include three inter-linked projects led by **Case** to improve the design and delivery of state-run smallholder farmer support services in Laos (Case Study – 'Livelihoods in Laos'). This is a collaboration with James Cook University in Australia and a network of District Agriculture and Forestry Offices (DAFO) in Laos and has resulted in; a £900,000 gross increase in incomes for 1,353 households over a four-year period; a formal Policy Brief to the Lao Ministry of Agriculture and Forestry recommending nationwide up-take of the approach; and international attention from such institutions as the Swiss Agency for Development and Cooperation, the United Nations Development Programme and the World Bank.

The research conducted by **Case** on organisational systems in malaria zones has also had a significant impact on international efforts to eradicate the disease (Case Study – 'Eliminating Malaria') through high level international collaborations. Backed by the Bill and Melinda Gates Foundation-funded Malaria Elimination Initiative, the work involved collaboration with the University of California, San Francisco (UCSF) to introduce a new approach to tackling malaria in Vietnam, Zimbabwe, Eswatini and Namibia. Capacity building of healthcare professionals and the development of accredited training for National Malaria Control Programme staff has created sustainable impacts in these regions.

Other examples of BLCC collaborations include:

A team including **Bolden** and **Edwards** was commissioned by a consortium of organisations including the NHS, Public Health England and the Leadership Centre for Local Government to evaluate the *Systems Leadership: Local Vision* initiative, where partner agencies in health, local government, police, voluntary sector and others worked together to address issues such as intergenerational obesity, dementia, and the integration of health and social care services. The project informed the recent NHS framework for action on improvement and leadership development.

In 2017 a team led by **Bolden** and **Jarvis** was appointed as independent evaluator and

## Unit-level environment template (REF5b)

academic partner for the NHS Leadership Academy's 'Building Leadership for Inclusion' initiative. This national project aims to update approaches to equality, diversity and inclusion, build leadership capability to enable significant progress on inclusion and to address under-representation at all levels in the NHS and partner agencies. This work has fed directly into the Academy's work on leadership and inclusion, including input to the NHS People Plan and response to the disproportionate impact of Covid-19 on BAME staff.

**Bolden** has been commissioned as local evaluator for Bristol Golden Key - an eight-year programme (running until 2021), funded through the National Lottery's Fulfilling Lives initiative. This aims to unlock access to services for people with complex multiple needs, including homelessness, mental health problems, drug/alcohol dependency and criminal offending behaviour. Golden Key is a collaborative partnership of statutory and not-for-profit agencies across Bristol (including NHS, police, probation, City Council, Second Step, Bristol Drugs Project, St Mungos, 1625ip and BLCC).

**Tapp's** work has contributed to public opinion and driver compliance with 20mph speed limits. His 'Wheels Skills and Thrills' project is part of the UK Department for Transport's stable of Young Driver Projects and has received over £0.5m of funding to date. It is the only one of DfT's projects to specifically focus on drivers from deprived areas. Tapp has also received over £200k from Public Health England to fund projects examining public opinion and disposition to respond to old age and end of life care planning, in collaboration with UWE's Centre for Public Health and Wellbeing. This work has informed PHE policies on their funding of Dying Matters and Advance Care Planning initiatives.

**Shortt** led the Post-Occupancy Evaluation project 'A Toolkit to Living in a New Building' which has influenced the work of partners, Stride Treglown (architects) and ISG (construction company) and improved their understanding and design of higher education buildings. With funding of £50,000 over two-years (2018-2020), the project uses innovative visual methods to explore a full year cycle of an HE building. More than 250 participants contributed to the study which has resulted in the production of a set of future-focused recommendations and value propositions for stakeholders involved in commissioning new university accommodation.

**Shortt** is co-leading a £10,000 Higher Education Innovation Funding/ Grants 4 Growth Scheme project with UWE colleagues and industry partners, BAM and Hydrock on 'Building a sense of wellbeing and identity – a visual study of building pre-occupancy with designers, HE staff and HE students'. Shortt's research on workspace and place, which included this project and others such as a post-occupancy project with the Environment Agency, have gained significant attention from national and international organisations such as Maverick AV solutions, The Working Parent Company, Work Wise UK, The Gainsborough 'Phenomenal Women' Series and Linklaters.

The Leadership Evaluation Collaboratory is a network of practitioners and academics (involving BLCC's **Edwards** and **Bolden** with partners from Lancaster and Winchester Universities) that promotes learning and experimentation around different approaches to evaluating leadership development and organisational change. Initiated in 2015, the Collaboratory was supported by funding from the NHS Leadership Academies of the South West and the Thames Valley and Wessex regions and continues to engage a broad network of professionals from the public, private and not-for-profit sector.

**Pandeli** undertook a ten-month ethnographic study of modern prison labour as part of her ESRC-funded doctorate. The research used observation and interviews to explore prisoners' experiences of completing work, inside prison, for private companies. The research has led to a Sage Prize in Excellence and Innovation (2020). As a result of her work, **Pandeli** was invited to participate in a BBC Work Service Podcast on prison labour and has been invited to contribute to several Online Magazines and Blogs (e.g. Futures of Work and Work-in-Progress).

Other examples of collaboration include **Davis** who has been appointed an Honorary Professor at Moray House School of Sport & Education, University of Edinburgh (2019-2022) and a Fellow

## Unit-level environment template (REF5b)

of the Faculty of Public Health through Distinction. **Cicmil** was awarded the 2017 Research Achievement Award from PMI (Project Management Institute, USA). **Bolden** was commissioned by the Singapore Civil Service College in 2016 to explore the paradoxes and tensions experienced by public sector leaders and managers in Singapore. **Case's** work has had documented impacts in the Greater Mekong Sub-region, his BMGF Background Paper was adopted by the Clinton Health Access Initiative (CHAI). In 2018, based on the international reputation of his malaria programme management work, **Case** was invited by Dr David Heymann, Director of the Centre on Global Health Security, to act as a discussant for a 'Rethinking Malaria' conference held at Chatham House. Co-founded by **Cicmil** and partners from the University of Manchester Business School and the Royal Institute of Technology, Stockholm, 'Making Projects Critical' (MPC) is an on-going academic-practitioner collaborative project. **Tapp** provided expert advice on social marketing through the 're-engaging into work project' (2018) for the UK Government Department for Work and Pensions. He has also contributed to the Scottish Parliament via an expert seminar on 20mph speed limits, as an expert to the Welsh Assembly Roundtable, and as Keynote to the European Police Federation Conference (all 2018). From 2018 onwards, **Edwards** initiated and chaired an interdisciplinary action group, The Transforming Construction Working Group (TCWG) that meets on a monthly basis to collaborate on research funding bids and development opportunities. The group includes members from industry and colleagues from BBS and from UWE's Faculty of Engineering and Technology.

### 4.2 Bristol Centre for Economics and Finance BCEF

Research by BCEF led by **Ritchie** has explored how governments re-use information to bring substantial public benefit in the form of better health care, improved policy-making and better services (Case Study – 'Confidential Data'). BCEF researchers developed conceptual frameworks, new statistical models, management tools and best practice training which has dramatically changed the way governments exploit data. The UWE model is seen as the most important basis for public sector data sharing in the UK and is used by statistical agencies in Canada, New Zealand and Australia.

**Bradley's** research has provided the basis for interventions and strategy within energy companies, charities and community interest companies, amongst others. His work has helped establish business models that are more environmentally, economically and socially sustainable and as we highlight in section 4.6 contributes towards one of our impact studies (Case Study – 'Sustainable Futures').

**Ritchie's** research has influenced the setting of, and compliance with, the UK's minimum wage, showing how the minimum wage is a psychological marker, influencing both wages paid and perceptions of 'fair' wages. The research led directly to the setting of the minimum wage at £6.50 in 2014. It also enabled the Low Pay Commission to identify data errors and improve data quality. Subsequent advice led to a major survey being de-commissioned and a new one commissioned in line with UWE recommendations. The research has also shown why so many apprentices are paid below the legal minimum and recommended an 'app' targeted at apprentices which the Trade Union Congress has implemented.

**Ritchie's** model of the 'Five Safes' of data governance has been widely influential: it is cited in the South Australia Public Sector (Data Sharing) Act 2016, section 7; drives the research data provisions of the Digital Economy Act 2017 (DEA); and in 2021, relabelled as 'the Five Data Sharing Principles', will become the basis for legislation for all government data sharing in Australia. The Office for National Statistics (ONS) was awarded the 'Cyber Resilience Innovation of the Year' award at the 'Digital Leaders 100' Awards in June 2017 for its implementation of the 'Five Safes' based on advice provided by **Ritchie**. BCEF's expertise in confidential data has led to their advice being sought by the UK Data Archive, HESA, ONS, the Health Foundation, the Australian Department of Social Services, Eurostat, and the statistics offices of Canada, Greece, Mexico and New Zealand. Most recently, the Covid-19 outbreak led several organisations to contact **Ritchie** for guidance on moving their data security training on-line.

## Unit-level environment template (REF5b)

**Gabor** has explored questions of critical macro-finance, in particular the co-evolution of market-based finance and macroeconomic policy, building theoretical and empirical bridges between academia, civil society and policy-making worlds. She has chaired the External Review Group for Sustainable Finance for the UK Labour Party, whose final report (November 2019) informs the Labour Party position on Green Finance.

**Gabor** has also developed a monetary theory of shadow money(ness) that builds on previously neglected questions of temporality. This helps conceptualize the distinctive fragilities of shadow-money: its temporality renders shadow money(ness) a complex fiction reliant on securities markets liquidity. The fiction, Professor Gabor's research argues, requires a new social contract around (shadow) money that re-shapes the relationship between the central bank, the state in its capacity as debt issuer, and shadow money-issuing institutions. These questions are approached through a comparison of shadow money creation in the US, Euro area and China.

**Gabor's** work has attracted the attention of central banks and regulators and she has provided expert advice to the European Parliament on the European Commission's Capital Markets Union project, given numerous seminars to central banks and is engaging in public debates on money through financial and social media. On issues of sustainability and green finance, she worked with the Heinrich Boll Foundation, producing reports on the international development agenda on sustainability that were presented at the Annual World Bank and IMF meetings in Washington, DC (October 2019). **Gabor** has published on the European Green Deal in the Guardian, and regularly publishes op-eds in the Financial Times.

Other notable instances of contribution have been:

- BCEF's Report on 'Financial Resilience in Charities' which was cited in the House of Lords report 'Stronger charities for a stronger society', March 2017 by the Select Committee on Charities (p72) by Lord Bisham.
- The article 'Local-level immigration and life satisfaction: The EU enlargement experience in England and Wales' by **Ivlevs** influenced the Migration Advisory Committee report to the UK government on the impact of EEA immigration and the UK post-Brexit immigration policy.
- **Ivlevs** has reviewed research grants for the Croatian Science Foundation (2018), the Dutch Research Council (2018) and ESRC (2015).
- **Guermat** holds a visiting Professorship at Mutah University, Jordan (2013-present).
- **Gabor** was called as an expert witness at the Public Hearing on the Economic Impact of Covid-19 at the European Parliament (2020).

### 4.3 Big Data Enterprise and Artificial Intelligence Laboratory (Big-DEAL)

**Oyedele** and **Akinade**, in partnership with Queen's University Belfast and Balfour Beatty Construction Services UK, developed a BIM-based software solution to facilitate the reduction of construction waste by the UK construction industry, right from the design phase of the project lifecycle. The project produced BIM-software (BIM Waste) as a Revit Add-in to support architects and design engineers to minimise construction project waste during the design stage.

**Oyedele, Akanbi** and **Akinade** have also developed a BIM-based tool for identifying and estimating the quantity of valuable building materials that are recoverable at the end-of-life of buildings. Demolition waste comprises significant proportion of valuable building materials that could be re-used for new constructions and refurbishment. However, no tool existed that could help in the identification of valuable building materials for reuse and recycling. The DRIM project was carried out in collaboration with Coventry University, Waste Plan Solutions Limited, and Sustainable Direction Limited.

**Oyedele, Davila-Delgado** and **Bilal**, in collaboration with Balfour Beatty Power Transmission and Distribution, have developed an integrated solution comprising an optimised BIM simulation tool, a quick planner and a project on a page (POAP) summary that interacts with Big Data Analytics to help stakeholders to plan and control project activities. The solution provides data-



## Unit-level environment template (REF5b)

driven insights to facilitate project teams in undertaking critical decisions during the project lifecycle stages. Apart from helping to digitise the construction process and eliminating operational inefficiencies, the project harnessed data and AI to support the vision of the UK government to transform the construction industry and improve productivity.

**Oyedele** and **Bilal** have investigated 'Real-time Emission Visualisation' (REVIS), in collaboration with Costain, TerOpta, Energy Maintenance Technologies and Brunel University, which aims to provide a step-change in decision-making and behavioural change for emissions reduction and will enable local authorities to devise and test emissions reduction policies tailored to their communities. REVIS will use IoT-sensors to measure the amount of NO<sub>2</sub> and CO<sub>2</sub> emissions on roads and highways and visualise them in real-time.

**Oyedele, Ajayi, Akinade** and **Davila-Delgado** have been working on Internet of Things (IoT) enabled platforms for monitoring rail assets in order to facilitate migration to a Predictive Maintenance regime (i-RAMP) and a Real-time Energy Analytics Platform (i-REAP) for commercial buildings. Sponsored by the Department for Transport through Innovate UK, the research was carried out in conjunction with Costain Limited, and Enable My Team, an SME with expertise in developing bespoke digital solutions for the infrastructure industry. The i-RAMP and i-REAP systems employed techniques in AI, IoT and Augmented Reality to enable real-time monitoring, predictive and preventive maintenance of rail assets. Currently at the trial stage, the project's outputs have huge potential to significantly reduce time to fix failures and provide better value to end users.

Furthermore, two articles published by the BIG-Deal group have been the most downloaded publications from the Journal of Building Engineering in the first quarter of 2020 (<https://www.journals.elsevier.com/journal-of-building-engineering/most-downloaded-articles>).

### 4.4 Human Resources, Work and Employment (HRWE) Group

As mentioned above, a mentoring scheme (alta) (Case Study – 'Women's Mentoring Scheme'), led by **Durbin**, was launched across the UK aviation and aerospace industry in March, 2019. The alta Mentoring Platform is now part of the mentoring 'offer' of the Royal Aeronautical Society and the other founding partners. Over 300 women and several large companies in the industry have so far signed up as mentors, mentees and supporters.

**Conley's** work on 'The gender equality duty in local government: the prospects for integration', Industrial Law Journal (2010), was cited in a House of Commons Briefing Paper Number 06591, December 2017 on 'The Public Sector Equality Duty and Equality Impact Assessments' (p23). Additionally, her academic publications have been cited 17 times in the Equality and Human Rights Commission Research report (2018) 'Reviewing the Aims and Effectiveness of the Public Sector Equality Duty (PSED) in Great Britain'. The Wales Centre for Public Policy report 'Putting equality at the heart of decision-making Gender Equality Review (GER) Phase One: International Policy and Practice' (July 2018) cited **Conley's** paper 'Gender equality in public services: Chasing the dream' (London, UK: Routledge, 2014) seven times as part of their recommendations to the Welsh Government's Rapid Review of Gender Equality (announced March 2018).

**Durbin** is a Board Member for the Bristol Women in Business Task Group, Bristol Women's Commission, Bristol City Council, a Board Member for Fair Play South West, a Founding Member, Transpire Director Network, an Expert Reviewer, ESRC funding bids, an External Advisor, Exeter University Business School, Athena Swan Bronze Application (2017-2018) and has held a visiting professorship role at the University of Sydney, Australia.

**Gaggiotti** holds visiting professorships at the Universidad de Baja California, Tijuana, México, the Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, México, the Bremen University of Applied Sciences, Germany, Universidad de Ciudad Juárez, México and Meiji University, Tokyo, Japan.

## Unit-level environment template (REF5b)

### 4.5 Applied Marketing Group (AMG)

A cross-centre collaboration between **Hughes** (AMG) and **Bradley** (BCEF) (Case Study – ‘Sustainable Futures’) established new frameworks for co-creative sustainable development in organisations. A KTP project enabled a technology company, Viper Innovations, to develop new markets with new commercial partners, increasing sales turnover by £1,275,000 p.a. and implementing structural and cultural changes to enable long-term global growth. They are currently working on other KTP project bids that bring together expertise from different research groups, for example with Sysmax Ltd and Harris Evolution.

**Hughes** and colleagues also worked with Viper Innovations on a KTP, funded by Innovate UK, which was awarded an ‘Outstanding’ rating. The project took a co-creative approach to user-led innovation by working with new partners in establishing how the company’s new ‘CableGuardian™’ technology can create value in different sectors and markets. The KTP has been strategically critical to Viper’s future ability to enter new markets with millions of pounds’ worth of potential.

**Vafeas** and **Hughes** were invited to deliver keynote speeches, based on their research into value co-creation in business-to-business relationships, at events hosted by organizations such as Business West, Design Business Association, Data and Marketing Association, Professional Marketers’ Forum, Chartered Institute of Marketing, and Bristol Media. **Vafeas** has also been interviewed about the research findings by the Agency Management Institute in the USA and has been asked to be a regular contributor to their blog.

In 2014, **Hughes** and **Vafeas** designed and delivered two-day marketing planning workshops to 150 SMEs in the South-West, supported by a £46K grant from European Regional Development Funding. **Vafeas** was invited to join the Regional Council (West and Wales) of the Data and Marketing Association (DMA). The DMA has a membership of over 1,000 UK companies and its mission is to set standards for marketing in the UK, help companies to grow, and nurture the next generation of marketers.

### 4.5 Innovation, Operations Management and Supply (IOMS) Group

Research led by **Phillips**, as Director of the Redistributed Manufacturing in Healthcare Network (RiHN), has contributed significantly to the Medicines and Healthcare Products Regulatory Agency (MHRA) work on developing innovative point-of-care manufacturing regulation. The UK Government’s Life Sciences Sector Deal 2 drew on work undertaken by the RiHN research team, and additional findings from the network have been used as evidence to the International Trade Select Committee discussions relating to Covid 19 and pharmaceutical supply chains.

**Phillips** has also been involved in the Science and Technology Impact Assessment Panel of the European Parliament foresight study on ‘Additive bio-manufacturing: 3D printing for medical recovery and human enhancement’ (Brussels, October 2017) and the World Economic Forum Global Future Council on Technology, Values and Policy (Bristol, May 2018). Furthermore, RiHN’s research has been recognised by MIT, Boston, USA who have used their findings in their Executive MBA programme.

**Kumar** has been involved in several international projects funded by Royal Academy of Engineering, Newton Fund, British Council and British Academy working closely with local councils and governments in the partnering regions on sustainable food supply chains. He has been a regular keynote speaker at several international conferences and events advocating sustainable practices in the food sector. He sits on the advisory panel of the Bristol Good Food Alliance working to improve the food system for the City of Bristol. His contribution to the field has been recognized by the Industrial Engineering and Operations Management (IEOM) society through the award of an IEOM Fellowship in March 2020. He sits on review panels for the UK Research Councils as well as The Research Council of the Sultanate of Oman and European Science Foundation.

**Unit-level environment template (REF5b)****4.7 Further Contributions**

In addition to specific collaborations, BBS research is communicated to stakeholders through a range of activities including an annual research showcase, Research Centre and group open days, presentations to stakeholder groups and headline presentations at UWE events such as the Distinguished Address Series, typically attended by over 250 members of stakeholder groups. Our commitment to the promotion of research excellence was also evidenced by hosting the British Academy of Management (BAM) Conference on behalf of the University in 2018. The conference was attended by international business and management scholars from around the world.

Staff across the School have held numerous editorial positions for journals; 11 editorial roles (nine as guest editors), 10 associate editor roles and 17 editorial board roles. Our academics have made keynote speeches and invited talks at over 40 international conferences and events, including **Guermat** at the Ecole Supérieure de Commerce, Algeria, **Gabor** at CERES Phd Conference (ISS, the Hague, March 2020), Tunis Conference on Monetary Sovereignty in Africa (Tunis, November 2019), Financialisation in the Global South (Buenos Aires, Argentina, November 2019), UNCTAD Debt Management Conference (November 2019, Geneva), **Gaggiotti** at AFIN Research Group, Autonomous University of Barcelona (October 2019) Universidad de Ciudad Juarez, Mexico, (2016), Universidad de Ciudad Juarez, Mexico (June, 2016); BIMTECH University. Bhubaneswar, India (May 2015); University of Barcelona (November 2015); American Anthropological Association. Washington, USA (December 2014); Turku School of Economics, Finland (April 2014), **Conley** at Université Saint-Louis-Bruxelles (February 2020); Ecole des Hautes Etudes en Sciences Sociales, Paris (April 2016); at Rhine-Waal University of Applied Sciences, Kleve, Germany (January 2015). **Kumar** at National Institute of Food, Technology Entrepreneurship and Management (India, 2020); National Economic University (Vietnam 2020); AlmaU School of Economics and Finance (Kazakhstan, 2020); University of Petroleum and Energy Studies (India, 2020); Gelisim University (Turkey, 2019); Sam Ratulangi University (Indonesia, 2019); Khon Kaen University (Thailand, 2018); Hanoi University (Vietnam, 2016). Keynotes have also been given at conferences hosted by the Universities of Oxford, Cambridge, Manchester, Antwerp, Perugia, Brunel, De Montfort, Bristol and Bath among others.