

Institution: University of Cambridge

Unit of Assessment: 17 Business and Management Studies

1. Unit context and structure, research and impact strategy

1.1 Context and Introduction

As laid out in the REF2014 submission, Cambridge Judge Business School (CJBS), over the past seven years, has developed and consolidated its deep engagement research strategy. The key premise is that excellence in research, impact and teaching are best approached as an integrated, holistic strategy. Research builds knowledge, which can fruitfully develop from ideas sparked through dialogue with practitioners and policymakers, with direct experience of the complexities of practice. This research strategy builds on the University's vision of "contributing to society through education, research and learning at the highest level of excellence" and aims to promote responsible business research with social impact.

The key elements of structure to facilitate research are Subject Groups, Centres, Executive education, and recognition and reward for impact. Researchers are organised in eight Subject Groups with affiliations to nineteen Centres, which are grouped into four clusters to enable research collaboration on cross-disciplinary topics. Centres promote impact through practitioner engagement and outreach, and facilitate research funding. They provide collaboration opportunities for early career researchers (ECRs), including PhD students, as well as mentorship and internal funding opportunities.

CJBS engages with the wider context of the University and the Cambridge innovation ecosystem. CJBS collaborates and shares research services with other departments within the School of Technology, including Engineering and Computer Science. Examples of collaborations and networking, further detailed in Section 4, range from working with Computer Science on Machine Learning through CJBS's Regulatory Genome project, which has made financial regulations machine readable and available for benchmarking globally, to working with the Medical School on rapid COVID-19 modelling support for Public Health England via the Cambridge Centre for Health Leadership and Enterprise, and working with Engineering to track the success factors of start-up companies originating from applied departmental research via the Entrepreneurship Centre. More broadly, CJBS has made important contributions to nurturing and scaling up of these and other companies in the Cambridge innovation ecosystem through incubators (e.g. Accelerate Cambridge and Social Incubator), engagement and public outreach (e.g. Enterprise Tuesday).

1.2 Structure for Promoting Research: Subject Groups and Centres

CJBS has eight Subject Groups: Finance, Marketing, Operations and Technology Management, Strategy and International Business, Organisational Theory and Information Systems, Organisational Behaviour, Business Economics and Policy, and Accounting. Each researcher is a member of one Subject Group, which is their primary institutional base.

CJBS aims to foster excellence across groups by facilitating diverse conversations, collaborations and training. CJBS has 19 Research Centres, which typically draw faculty from multiple Subject Groups. Their mission is to combine research, impact and outreach through engagement with practitioners and policymakers. A number of the Centres have successfully attracted substantial research funding from philanthropy, government and corporate sources. For example, Cambridge Social Innovation (CSI) was awarded £3.5M as a major gift in 2016, Cambridge Centre for Alternative Finance (CCAF) was awarded £5.6M from the Department for International Development (DfID) in 2019, while Cambridge Centre for Risk Studies (CCRS) was established through company sponsorship. Funded activities include: doctoral students and postdoctoral researcher support, conferences, courses, company engagement through workshops, and contract research (“business intelligence”). This portfolio of activities corresponds to the impact-oriented research mission of the Centres.

Centres are formed through a rigorous application process and subsequently monitored through processes overseen by the CJBS Research Office and Director. Centre applications are approved by the Faculty Board, which requires them to outline their research and business plan for how they will contribute to fundamental and applied research. Centres annually report on engagement activities, impact and funding. Representatives of the Centres, along with university-wide network representatives (which has included the Strategic Partnerships Office and University Research Office), are invited to an annual Centres summit. The summit offers a forum that promotes collaboration and knowledge exchange between the Centres and across the university. A plan has been approved to review Centres on a rolling basis every three years to assess and further develop their impact. In some cases, a remediation plan may need to be developed, Centres put on probation, and eventually closed.

Figure 1 shows how the 19 Centres (by date established) are organised into four clusters: *Finance and Regulation*; *Innovation and Sustainability*; *Operations, Risk and Policy*; and *International Business and Workplace Studies*. Clusters encourage collaboration across centres around common, complex challenges to advance knowledge development and dissemination. For example, Centres in the Innovation and Sustainability cluster (Cambridge Social Innovation (CSI), Entrepreneurship, Cambridge Digital Innovation (CDI), and Circular Economy Centre (CEC)),

developed and shared knowledge on areas including digital business models, sustainable growth, technology-enabled social inclusion and environmental sustainability. Cross-Centre collaboration in this cluster led to the development of modules on research programmes (MPhil, PhD); CDI and CSI developed new courses on digital and social innovation that covered different areas of current research including poverty alleviation (Stott), mobile payments for financial inclusion (Barrett) and hybrid business models for social enterprise (Tracey). Centres also provide a base for networking. Researchers in the Innovation and Sustainability cluster have participated in the University Strategic Research Initiative on Cambridge Global Challenges and have contributed nationally as members of the Steering Committee of ESRC Grand Challenges and external evaluators on UKRI's Grand Challenges Call on Digital Innovation for Development (Barrett).

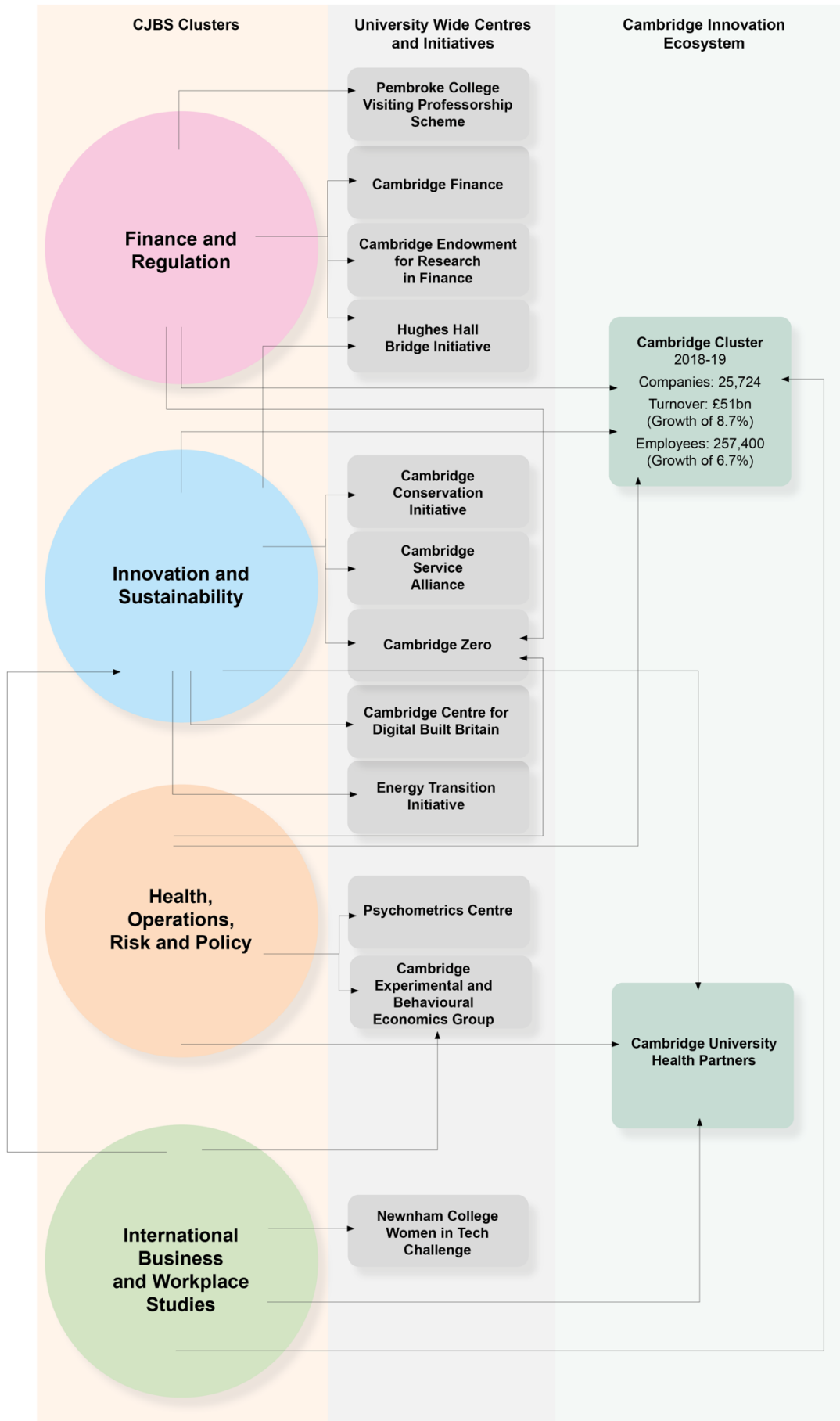
Figure 1: Organising the 19 Centres into 4 Clusters



1.3 Research and Impact Strategy: An Integrated Approach

The mission of CJBS is to be a leading global research-based business school with exceptional research and education programmes, where research and teaching together deliver transformative impact, at the heart of one of the world's top-tier universities. CJBS faculty lead a number of research networks across the University and beyond. Figure 2 depicts connections and key collaborations between CJBS, the wider university and the Cambridge Innovation Ecosystem.

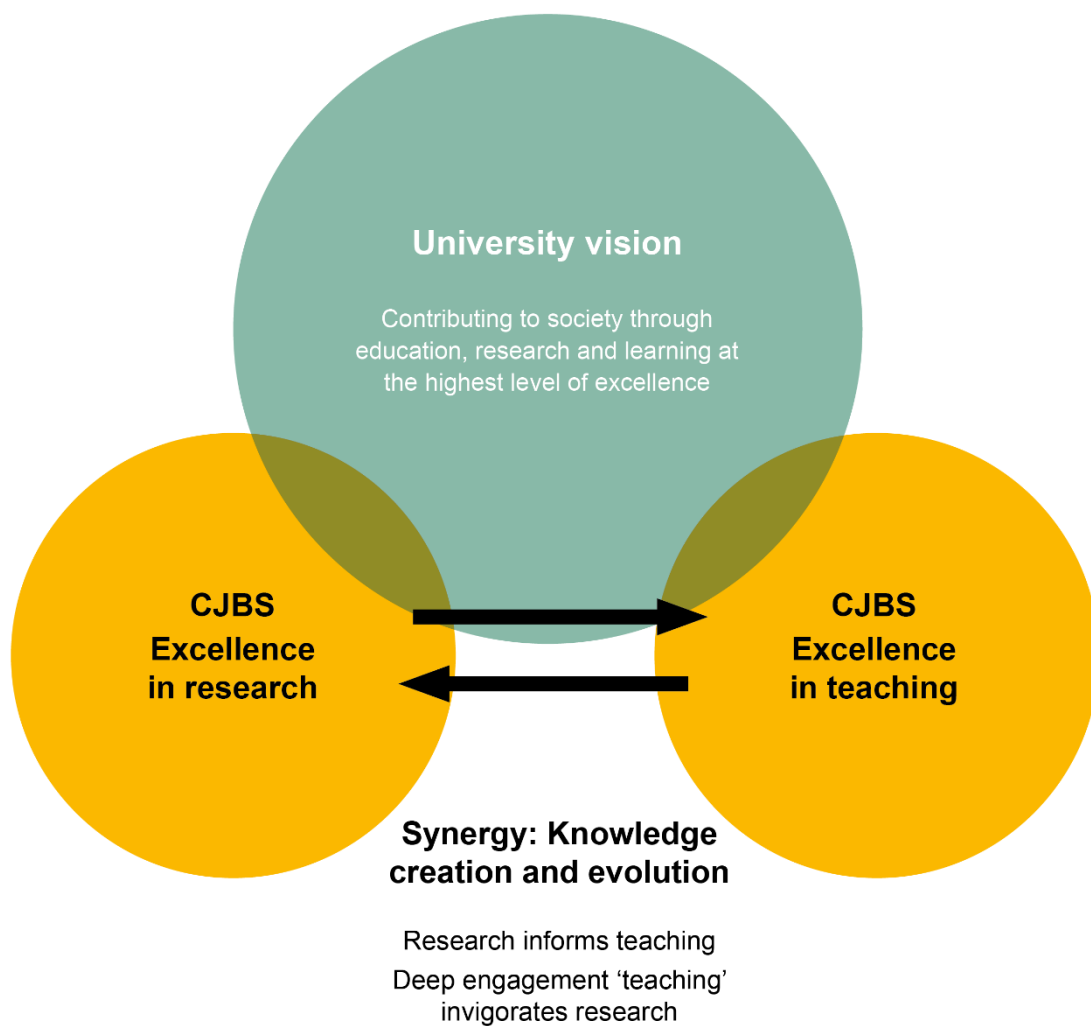
Figure 2: Connections between CJBS Clusters, University-wide Centres and Initiatives and the Cambridge Innovation Ecosystem



Broadening Deep Engagement Strategy with Social Impact

This section outlines the logic behind the deep engagement strategy and discusses how it has been developed to achieve social impact. As shown in Figure 3, deep engagement involves creating synergies between research and teaching as an impactful two-way dialogue. This takes place through engagement with senior students (on the MBA, EMBA, MFin, MAcc, MSt and BusD programmes), executives and entrepreneurs on executive programmes, and organisational affiliates to centres that offer access to innovative practices, novel experiments and deep practical knowledge.

Figure 3: Deep Engagement as a CJBS Research Strategy Embedded in the University Vision



Since 2014, we have focused our research impact strategy to increasingly address issues of environmental and social impact, as detailed more comprehensively in section 4, in our contribution to the economy and society. For example, finance research by CEAM focuses on incorporating Environment, Social and Governance (ESG) principles into investment practice through what they term Active Engagement (Dimson and Karakas). This complements integrated

climate modelling and economic assessment (Hope) and other initiatives on climate action and energy transition in (inter)national markets (Pollitt, Reiner). The Centre for Alternative Finance worked with finance regulators, DFID, the Bank for International Settlements and the World Bank to develop a benchmark for regulation and support training for global financial services regulators and policymakers (with over 140 participants from 53 countries). Research on frugal innovation at the Centre for India and Global Business and the Circular Economy Centre has developed and applied principles of frugal innovation in doing more with less in social enterprise, business and government settings in Asia, UK and Europe.

Beyond direct engagement with practical challenges and practitioners through research Centres, CJBS realises the impact side of its deep engagement approach through three additional activities: Executive Education, intra-university collaboration, and building researcher incentives and orientation towards achieving impact.

1.3.1 Research Impact through Executive Education

Reflecting CJBS's emphasis on engaging research and teaching, and academia and practice, Executive Education brings researchers, senior practitioners and businesspeople together to share knowledge and experiences. Through this, research Centres have become increasingly involved in promoting teaching programmes, for example, the Entrepreneurship Centre's (Kavadias, Loch) SME growth programmes, the Barclays Scale-Up programme and the Centre for Alternative Finance's (Wardrop, Rau, Zhang) course for global regulators based on research on alternative finance, including financial channels and instruments. The Centre for Risk Studies (Ralph, Tuveson, Coburn) has shared its knowledge on systemic risk and cyber risks with financial service clients, while gaining insights in the process on commercial risk management. The Health Leadership & Enterprise Centre (Scholtes, Erhun, Jiang, Barrett) equips hospital consultants and more recently General Practitioners across the East of England with clinical leadership training and develops in-house capacity through cutting-edge health improvement projects.

Executive Education has been a primary channel for facilitating and disseminating research with economic and social value. It has augmented research activities by enabling case study opportunities (e.g. from companies such as LEGO) and research grants (e.g. from the Prime Minister's Office in the UAE). Faculty, from early career to senior researchers, are encouraged to engage in Executive Education as, inter alia, an effective test bed for gauging research's wider value and relevance. Faculty can also interrogate the application and meaning of their research with practitioners and identify research questions.

1.3.2 Intra-University Collaboration as a Pathway to Impact and Public Engagement

Summarised in Figure 2, CJBS contributes to, and in some cases leads, a number of University-wide research initiatives. It is part of the Energy Policy Research Group (EPRG), which joined the new University-wide climate change initiative – Cambridge Zero – in 2019. This draws from the sciences, engineering, humanities and social sciences – and policy expertise – to respond to climate change and support the transition to a sustainable zero-carbon future. Newer CJBS Centres, such as Cambridge Digital Innovation (CDI), collaborate with the Cambridge Centre for Digital Built Britain, an initiative spanning CJBS, Engineering, Architecture, Computer Science and Technology and Land Economy. It works with national bodies, including the Manufacturing Technology Centre (MTC) and the Construction Innovation Hub (CIH). Collectively, they aim to digitally transform the construction industry. CDI leads on the Smart Hospital of the Future, studying how digital technologies, including telemedicine, can help in the redesign of hospitals and community care across the UK.

Over this REF period, CJBS has, in line with its mission to be at the heart of the University, increased research collaboration with colleges, which are a crucible of multidisciplinary scholarship. Their interdisciplinary foundations and wider networks can help to catalyse and scale the capacity of research to achieve policy and practitioner impact. Cambridge colleges provide financial support for small-scale research activities including field trips and offer a convening environment for researchers. The CJBS Wo+Men's Leadership Centre and Newnham College launched the annual Women in Tech Challenge (2018) in collaboration with prominent global companies including Microsoft, GSK and Amazon. This challenge facilitated close working with senior executives from these companies on real world challenges, helping female graduate students, postdocs and research associates build critical career skills in tech. Cambridge Digital Innovation worked with the Bridge Initiative at Hughes Hall College to convene translational workshops to assist academics in widening research impact.

1.3.3 Support for Impactful Researchers

CJBS support for academics has been important for achieving, prioritising and recognising impactful research. Discussed in Section 2, our probation system encourages early-career faculty members to value impact as well as publish in high quality academic journals. This strategy allows faculty to develop significant academic contributions and have a research impact on practice and/or policy. In 2015, CJBS established a set of annual impact awards to recognise and reward impactful work contributing to society and the economy (Ralph and Soufani were 2020 winners). Faculty have been nominated for the Vice-Chancellor's (VC) Impact and Public Engagement with Research Awards schemes at University level. In 2017, Dimson won the VC Impact award for the

Active Ownership initiative. Finally, bottom-up structures for supporting impact have emerged, such as the doctoral student-initiated Impact Forum, and faculty-led Research Impact and Contribution to Knowledge workshops.

1.4. Support for Research

Administrative Support

In addition to all research bids being subject to peer review at the School of Technology level, CJBS provides specialist support in framing bids for some large and prestigious grants (e.g. Future Leaders Fellowship, Leverhulme, ESRC). We strengthened research administration with increased capacity to support workshops, conferences, visiting programmes and speakers. An Impact and Engagement Manager was hired to support faculty in developing impact elements of research projects, connect with University-wide Strategic Research Initiatives and promote multidisciplinary research.

Ethical Practices and Open Access

At the early stages of research project development, those leading projects involving human participants submit a request for ethical clearance. They are required to identify potential ethical concerns and outline how they will be addressed. The application and supporting documentation are stored for audit purposes. The Departmental ethics review group is comprised of three faculty members and the Research Manager. Complex cases are referred to a University-level Research Ethics Committee. The University professional development team provides online research ethics and integrity training, and the Research Manager offers face-to-face workshops to postgraduate research students.

Enabling research dissemination, CJBS actively encourages the ethos of open access (OA) and provides dedicated resource to help and support OA compliance. We also recognise the importance of facilitating third-party access to datasets and other research outputs. For example, CCAF makes their Global Alternative Finance Data Repository publicly available to practitioners and academics, while CRS makes publicly available their Global Risk Index.

1.5. Research Objectives: REF2014, REF2021 and Future Strategic Aims

Table 1 below summarises CJBS's progress against its objectives. It sets out how strategic aims translated into impact, new initiatives and interdisciplinary activities. The first column outlines objectives set out and achieved for REF2014. The second column identifies objectives and activities within this REF cycle. The third column outlines objectives and plans for the next REF period. The current period has focused on consolidating and expanding deep engagement

strategy and structures, and developing social and environmental impact. Going forward, we will expand interdisciplinary activities across the university, and engagement with stakeholders in policy and practice, to further integrate and broaden the social impact of research.

Table 1 REF 2014, REF 2021, REF 2028

REF 2014	REF 2021	REF 2028
Research strategy and impact	Research strategy and impact	Research strategy and impact
Initiate CJBS strategy for research and impact	Embed deep engagement strategy across subject groups to strengthen research and impact	Accelerate deep engagement to Increase visibility of thought leadership in academic and business practice
Early stages of development of Research Centres	Widen research impact to include Social and Environmental Impact	Strengthen and deepen social and environmental impact on policy (e.g. regulatory genome project), markets (e.g. circular supply chains), practices (e.g. ESG mission) and wider society (e.g. inclusive capitalism)
Interact across University and Cambridge on innovation and entrepreneurship	Develop Research Clusters as hubs for research excellence, impact and engagement	Extend contributions to entrepreneurial and social innovation ecosystems nationally and internationally
	Expand entrepreneurial and social innovation research and engagement beyond Cambridge region	
New strategic initiatives	New strategic initiatives	New strategic initiatives
Agreed deep engagement strategy across CJBS and enhanced CJBS implementation capacity	Strengthened accelerator development and created a social incubator	Increase collaboration across university-wide centres (EPRG, CBR), strategic research initiatives (Cambridge Zero), Colleges (CDI), and policy (CSaP, Bennett Institute)
Strengthened research on innovation and entrepreneurship, and extended support through an accelerator and work on sustainability	Expanded impact across Cambridge ecosystem and across regions in the UK	Develop capabilities and thought leadership on social and environmental issues in a post-COVID world
	Extended research into sustainability, and contributed to the university initiative, Cambridge Zero	Strengthen engagement and outreach with Big Science and technology organisations in Cambridge (Wellcome Genome Campus, Silicon Fen)
	Extended CJBS's international reach through collaborations in Shenzhen, China, and through the "Regulatory Genome" project with regulators globally	
Interdisciplinary activities	Interdisciplinary activities	Interdisciplinary activities
Centres developed across Entrepreneurship, Innovation, Sustainability, and Policy	Fostered collaborative research and engagement across: <ul style="list-style-type: none"> • Social and digital innovation • Entrepreneurship • Environmental social and governance externalities such as Grand Challenges climate change, SDGs) • Alternative finance, technology and regulation 	Increase multidisciplinary research with other university departments
		Sustain and grow research programmes across subject groups, centres and university-wide initiatives, e.g. THIS (medicine), Cambridge Circular Plastics Centre (chemical engineering); CDBB (architecture, land economy, engineering, Trust & Technology (humanities, political studies)

2. People

2.1 Staff Profile

Our staff profile has expanded and diversified since REF2014. At that time, we had 59 academics (including 15 Professors) and planned to introduce management practice faculty. Management practice faculty are primarily responsible for providing teaching and knowledge sharing. This often reflects their significant practical experience, and helps to realise our impact strategy. In July 2020, through recruiting and successful promotion, CJBS had 64 academic faculty members including 26 Professors, 10 Readers, 13 University Senior Lecturers, 12 Lecturers and three Senior Research Associates within its REF eligible staff. Additionally, CJBS has 11 management practice faculty and an international network of distinguished associates.

2.2 Staffing & Appointments Strategy

Our staffing policy aims at modest growth in faculty numbers, with a focus on senior appointments to ensure we have experienced staff to provide leadership to junior colleagues in our Subject Groups. Since REF2014, this included restructuring to achieve critical mass in two additional Subject Groups: Accounting (originally part of Accounting and Finance) and Organisational Behaviour (evolving from Organisational Behaviour and Information Systems). We have sought to ensure vitality and diversity in research, and recruited staff from 26 countries who are at different career stages, and with a collaborative ethos to work across disciplinary boundaries.

Careful management of the promotions pipeline is key to our strategy. The promotions committee works closely with Subject Group heads to provide advice and support nominated candidates for promotion to maximise the likelihood of their success. CJBS has had a 100% success rate of promotion applications in the last five years: six to Professor and seven to Reader.

We have made a number of new appointments in Subject Groups across different levels, including eight junior to mid-career faculty. We work closely with search consultants to recruit outstanding individuals and strengthen equality and diversity. In this REF period, CJBS took active steps in recruiting, retaining, and promoting seven female faculty members, five (Erhun, Nadkarni, Howard-Grenville, Kor, Sah) at senior levels. As part of our recruiting process, we support and advise prospective candidates on issues including housing and schools, engaging a Property and Schools Adviser for this purpose.

2.3 Career Tracks for Management Practice Faculty

A key feature of CJBS's people strategy since 2014 was establishing its management practice track. CJBS successfully developed and mentored a high-calibre track of management practice faculty, and increased the number from three to 11. They bring significant practical experience to their teaching and are important to CJBS's practitioner engagement, impact strategy and thought leadership. CJBS developed this career track with progression paths (to Reader and Professor levels). This has been important in recruiting, developing and retaining a high-calibre cadre of individuals who are excellent in teaching and programme direction, and often active in Centre management and knowledge dissemination.

2.4 Cultivating Knowledge Exchange Through an International Network of Associates

An international network of distinguished associates forms part of our research staffing strategy. This includes associates on long-term part-time contracts who play leadership and mentoring roles (Heide from Madison Wisconsin; Orlikowski from MIT), and support our engagement with international academic networks and research collaborations. Others hold visiting fellowships at CJBS (e.g. Reed from North Carolina and Subrahmanyam from UCLA), and some hold Visiting College appointments (e.g., Lukomnik as Pembroke Visiting Professor). Others are College Fellows (e.g. Williamson) or Associates (e.g. Prince) who have been active in knowledge development and exchange with our research community (e.g. Williamson co-authored with Yin and developed research-based executive development for Chinese firms investing in the UK; Prince is Director of Cambridge Digital Innovation, co-authored with Barrett, and has developed research-based executive development on digital innovation and transformation).

2.5 Staff Development and Support

Support mechanisms for researchers at different career stages

Postdoctoral Fellows

The number of postdoctoral Fellows associated with CJBS is growing, primarily through funding brought into the Centres. Fellows are part of the University-wide community and the CJBS Postdoc Forum, which organises seminars on career progression, networking events, and coordinates activities with the University's Postdoc Academy.

Early career researchers as University Teaching Officers

The probation process for University Teaching Officers (the Cambridge category for Assistant Professors or Lecturers) involves annual reporting and substantial feedback for the first five years of a new appointment. New appointees are often explicitly encouraged to work with senior co-

authors. Departmental small grants prioritise probationary faculty. Travel funding to visit co-authors enabled Stella Pachidi to publish her work in the journal *Organization Science*, while Jenny Chu and Joon Kim were supported to visit co-authors to develop papers, either under review at *Accounting Review* or published in the *Academy Management Journal*. Funding for transcription and casual research assistance enabled another young faculty member, Jochem Kroezen, to publish in *Research in the Sociology of Organizations*.

Support for senior academics

In close collaboration with the promotions committee and Subject Group heads, feedback and advice are offered to support academics in the senior academic promotions process, and academics are encouraged to widen the impact of their work beyond the field to practice and policy. Each faculty member has annual funding of £5k for conference attendance or other forms of research assistance. Faculty can also apply for seed funding through the Departmental Small Grants to initiate new research or develop grants. Larger grants (upwards of £10k) are available through the School of Technology to support cross-departmental research.

2.6 Recognition and Reward for Impact and Public Engagement

Faculty were successfully nominated for the Vice-Chancellor's Impact and Public Engagement with Research Awards. Neil Stott & Belinda Bell received the Award in 2017 for Cambridge Social Ventures (venture spun off from Disease Dynamics Unit at Cambridge), which embeds research around social innovation into a practical workshop to support emerging social entrepreneurs. Since 2014, they have reached almost 500 people seeking to create social change by starting and growing a business. Their team has made considerable efforts to include participants from non-traditional backgrounds, and ensure workshops are accessible to a wide public by incorporating online engagement and work in the community.

Our communications team assist faculty in disseminating research findings and engaging via digital and print media (e.g. Research Insights on the CJBS website). They work with the central University communications team on dissemination and pathways to impact, for example, a video by Pollitt on behalf of EPRG. To maintain connectivity during COVID-19 virtual working, a series of engagement and impact webinars were developed (Dimson on Financial Market History & COVID; Taylor on How to Survive and Thrive in a Post-COVID World).

2.7 Postgraduate Students: Recruitment, Training and Supervision

Recruitment

On 31 July 2020 we had 30 PhD students. They are recruited through two main routes: 1) admission to one of our research MPhils; and 2) a direct route to the PhD. The latter option begins

with an MRes for students with a research foundation usually developed through an external Master's programme. The purpose of the PhD programme is to train future academics and place them in leading business schools. We ensure all students are sufficiently funded for four years in full registration. All our students are fully funded and none are self-funded. Sources include four ESRC quota scholarships per annum, Departmental funds, and awards from external grant bodies and donors, including Cambridge Trusts.

Formal training and support

The PhD programme admission requirements, cohort size and ratio of supervisors to supervisees all contribute to a programme that emphasises quality in every aspect. We have developed and deliver a suite of 26 graduate coursework modules. All PhD students take a minimum of 12 modules as part of an initial two-year training following a foundational research Master's programme. All students have a committee with at least two supervisors and a minimum of fortnightly one-to-one supervisions, termly reports and subject-specific weekly reading groups. The PhD programme structure encourages students to develop a co-authored paper with the help and mentoring of their primary supervisors, for submission to a top academic journal in their field. Faculty are encouraged to prioritise the development of papers with their students where synergies exist.

PhD students participate in research Centres, and benefit from access to supporting organisations and mentoring by Centre faculty and collaborators. For example, doctoral student Lidia Betcheva worked with Feryal Erhun of the Cambridge Centre for Health Leadership & Enterprise on a project "International value comparison for CABG surgery" with Dr Stephen Webb, Papworth Hospital, while Isabel Bruggeman worked with Paul Tracey and Jochem Kroezen at the Centre for Social Innovation on a project examining the translation of "sustainable livelihoods" from the UK to Indonesia. Students also have the opportunity to work with University-wide centres and initiatives. For example, doctoral student, Geoffroy Dolphin, has worked with Michael Pollitt and David Newbery through the Energy Policy Research Group on a project investigating the political economy of carbon pricing.

The CJBS doctoral conference includes a keynote from a renowned scholar (Bob Hinings in 2019) and active faculty involvement as discussants, judges for the best paper award and student coaches on presentation and Q&A skills. The COVID-19 crisis provided opportunities to PhD students to participate in project teams of faculty (Howard-Grenville, Kattuman, Scholtes, Jiang, Erhun, Munir) and former PhD students (Wessendorf, Pape, Kajaria-Montag, Ebert, Betcheva) working with Public Health England and the NHS in the East of England on projects (e.g. capacity planning, disruptive innovation) related to COVID-19 responses. The impact of COVID-19 on PhD student research has varied. Whilst a number of students have been supported by participating in

these exciting emerging opportunities, others have postponed scheduled fieldwork and pivoted to online and secondary data approaches. COVID-19-related support for PhD students included extensions where needed and extra supervisions.

Building academic networks: international scholars and visiting opportunities

Doctoral students interact with prominent academics via research seminars and in 1:1 engagements. International scholars also have worked closely with PhD students by offering advanced methods workshops on building theoretical contributions (Wanda Orlikowski) and publishing research (Karen Golden-Biddle). These initiatives have helped to build a vibrant PhD research community. This community has also sought to develop research impact. In 2018, PhD students initiated their own Impact Forum and invited Andrew Van de Ven (University of Minnesota), an authority on engaged scholarship, to present insights on crafting impactful research.

PhD candidates have spent time as visiting students at major universities, expanding their networking and learning opportunities (including Polykarpou at McGill, Hampel at Northwestern, Bruggeman at Yale, Claus at Alberta). Visits have led to opportunities for students to develop their work and co-author with faculty. For example, Christian Hampel, while at Northwestern, developed a paper with Professor Klaus Weber and his CJBS supervisor, Professor Paul Tracey, which was published in 2020 in the *Academy of Management Journal*.

Recognition and external placement

The strength of our PhD programme and support is evidenced by the quality of our graduates, their preparation through the programme and the collaborative research culture. The positive impact of our PhD programme is evidenced in students across different management fields submitting doctoral research, and achieving either a Revise and Resubmit decision or publication of papers in outlets including *Management Science*, *Academy of Management Journal*, *Information & Organization*, *Organization Studies*. Many students have been recognised for their work through prizes at highly regarded international conferences in their field, such as the Academy of Management, EGOS, INFORMS, Strategic Management Conference. For example, Laura Claus's co-authored paper with Greenwood (one of our CJBS Fellows) and Mgoo (2017) was selected for the Best International Paper Award, OMT Division of the Academy of Management Conference, and the prestigious Carolyn Dexter Award across all divisions. Corinna Frey's co-authored paper with Barrett was nominated for two best paper awards: the European Group of Organizational Studies Best Student Paper Award and the Max Boisot Award (for honours papers on the knowledge-based study of complex organisations and systems). Luna Luan received a Best Paper award at this year's AOM (jointly with Joon Kim) from the diversity division of Gender and Diversity in Organizations. Shi Tang published a paper on Gender

Diversity, Psychological Safety, and Firm Strategic Orientation in the *Academy of Management Journal* with Nadkarni.

The success of the CJBS's PhD training and environment is further evidenced in students' ability to secure academic posts at highly regarded institutions on graduation. Graduate placements during this REF period include:

London Business School | **Francisco Brahm** 2018

UCL | **Laura Claus** 2018

Rotterdam School of Management | **Corinna Frey** 2018

Cass Business School | **Maima Aulia Syakhroza** 2018

INSEAD | **Michael Freeman** 2017

Warwick Business School | **Rene Wiedner** 2017

INSEAD | **Melanie Milovac** 2017

UCL | **Angela Aristidou** 2017

Imperial College London | **Christian Hampel** 2016

UCL | **Blaine Landis** 2015

Rotterdam Erasmus | **Stefano Tasselli** 2015

McGill University | **Anna Kim** 2014

2.8 Support for Leave

The UoA provides research staff with short academic leave, sabbatical leave, maternity and paternity leave, sickness leave, annual leave and study leave. We encourage all academic staff to use sabbatical entitlements to focus on their research. Faculty are required to provide a report to the CJBS Faculty Board detailing activity and outputs from their sabbatical, enabling them to share achievements and encourage productive use of leave entitlements. The introduction of Shared Parental Leave (SPL) in April 2015 was well received and taken up by academic staff. The University also offers up to 20 'Keep in Touch' or 'SPL in Touch' days for which staff receive a full day's pay for each day they attend work. The HR team reassures staff that cover will be put in place before SPL is taken, and that there will be handover periods prior to and on return from leave. Staff have the option to return to work part-time initially (with cover retained until they resume normal working hours). Since 1 October 2019, staff can take five working days' paid leave (pro-rated for part-time staff) in any rolling 12-month period to deal with emergencies involving dependants (spouse, civil partner, child, parent or someone who lives with the staff member as part of their family excluding a lodger or boarder). The aim is to provide a flexible framework that enables employees to request time off for a wide range of personal and professional reasons.

2.9 Equality and Diversity

In line with the Equality Act 2010, which highlights the importance of being cognisant of different protected characteristics, CJBS builds upon the University-wide provisions for E&D, most notably through commitment and engagement from all senior colleagues, and a dedicated HR department to support and promote equality, diversity and inclusion. HR oversees all recruitment, probation, promotions and rewards to mitigate bias and champion equality. It organises training and participates in committees in order to address staff and students concerns, specifically around gender, racial and LGBTQ+ equality. CJBS strives to ensure full engagement of staff in training in E&D and unconscious bias. New starters are required to complete online E&D training. Training needs to be refreshed on a regular cycle, particularly for those involved in recruitment. REF UoA committee members completed E&D training, and a commitment to E&D is reflected in the UoA Working Methods for identifying eligible staff, output selection and case study development.

Specific initiatives have been developed to improve awareness and practice around gender- and race-based equality. The creation of the Wo+Men's Leadership Centre in 2017 was central in raising awareness of gender inequality internally, and focusing attention on opportunities and barriers around recruitment, career progression, academia and senior leadership. CJBS developed an Action Plan to support and promote gender equality, linked to its Athena Swan application. CJBS is in the process of making an application for the Athena SWAN bronze award in 2021 and co-ordinating the delivery of the targets developed in the Athena SWAN action plan and inclusion strategy. Key focus areas are recruitment and retention, career progression and raising the profile of women.

To address concerns about race equality, the University joined the Advance HE's Race Equality Charter (REC) in 2016 and received the REC Bronze award in November 2019. The University has instituted a new set of mechanisms and processes to address racial inequalities. In October 2018, it created the "End Everyday Racism" platform, where individuals can report incidents of everyday racism to help inform anti-racism activities at the University. CJBS actively engages in University efforts; for example, Kamal Munir is a University's equality champion for Race and Inclusion and Rabia Dada-Oughton is the co-chair of the University of Cambridge BAME network. CJBS remains committed to diversity and inclusion and supporting BME staff and University-wide initiatives at a time of heightened public awareness of BME issues.

Internationally, researchers (Barrett, Prabhu) developed collaborative projects through Cambridge-Africa grants mentoring younger academics in Kenya (Liyala on mobile payments) and Uganda (Yawe on financial inclusion and innovation) to jointly address inequality and poverty alleviation for financial inclusion and access to clean energy in very poor rural communities.

Implementing and building upon the University-wide Equality & Diversity Strategy 2016-21 is a priority looking forward. CJBS has applied to the University Diversity Fund to undertake a research project to identify the make-up of its staff to improve our support for diversity and inclusion. This close assessment will enable us to better understand the 'lived experience' of BME staff and assess staff's diversity awareness. This will inform a plan to improve promotion and compensation structures with respect to race, and to hold workshops to help build a culture that supports equality and diversity. This would be the starting point for identifying areas where CJBS falls short regarding the diversity of its staff in order to set priorities and focus efforts, resources and activities.

3. Income, infrastructure and facilities

3.1 Research Income

Grants activated in this REF period totalled £9.3M. Grants include multi-HEI collaborations, demonstrating faculty engagement in international thought leadership. This included the EPSRC-funded Carbon Capture and Storage Research Centre (£956K), where Reiner leads the policy, economics and finance research stream. Soufani is part of a multi-partner EPSRC project (£43K) examining creative approaches to eliminate plastics waste. Stiles works with colleagues at Lancaster on a five-year EPSRC project (£321K) on digital infrastructure. The Health Foundation supported Jones and the Papworth Trust to assess critical care quality improvements through the use of Clinical Information Systems data.

A programme of targeted fundraising supported the creation of research Centres, including major donations to the Centre for Social Innovation (£7M over five years) and the Centre for Strategic Philanthropy (£2.7M over four years), and supported the growth of established Centres, such as the CME Group Foundation's US\$1m donation to CCAF. Several awards were made to research Centres to facilitate impactful research, such as Wardrop's Cambridge Alternative Finance Collaboration Network, which secured £5.6M from DfID for accelerating knowledge creation and transfer in fintech and global regulatory reform.

Major funding came from Research Councils, particularly EPSRC (£1.23M) and ESRC (£436.9K), as well as smaller amounts from a range of grants such as BBSRC (£125.9K), and NERC (£237.1K).

The European Commission continued to be a major source of funding, such as Reiner's NEGEM project assessing the efficiency of negative emission technologies, and Soufani's project assessing the application of circular economy thinking to the defence sector. Other sources of funding included the Department for Business, Energy and Industrial Strategy, Health Foundation, British Council, Leverhulme Trust and NESTA. The largest single UK source is the grant of £5.6M from DfID to CCAF.

In addition, CJBS funds research through its small research grant scheme of £100K per year, where (especially junior) faculty can easily get seed funding for studies without having to go through lengthy external research grant applications. Although not classed as research income, £15.9M was raised in this period for the building expansion programme, described below, which greatly strengthened research facilities.

3.2 Infrastructure

Physical infrastructure: building development to enhance research facilities

In 2014, some of our research groups were located outside the main building. As a result of the significant fundraising effort, a major family trust committed a donation to develop and execute a master redevelopment plan, including an award-winning new building: the Simon Sainsbury Centre.

The redevelopment was designed to build community and collaboration through co-location of all research staff and proximity to research students. The building extension and redevelopment of parts of the existing building were completed in 2018, successfully bringing all faculty and research support staff on to one site. This has enhanced communication across and between Subject Groups, research Centres and Executive Education, and has secured a physical infrastructure that enhances our research strategy and our approach to community and collaboration.

The standard of office accommodation for research staff was enhanced through the redevelopment. New seminar rooms were added, which are used by the research centres and Executive Education programmes. Two new dining rooms were created to foster collegiality and facilitate more opportunities for engagement between faculty and student researchers, and with executive programme clients.

Organisational infrastructure supporting research

As mentioned earlier, research is organised through Subject Groups and research Centres. Facilities and infrastructure support research impact via venture creation weekends, Enterprise Tuesday (outreach on entrepreneurship and networking), and our social incubator and accelerator.

Faculty research is supported by a seminar series, subject-specific reading groups to help younger researchers finalise papers, and larger conferences. Some of these focus on ECRs, such as the annual Doctoral Winter Symposium or the Corporate Finance Theory Symposium. Others seek synergies between academics and practitioners, such as the annual Innofrugal conference on frugal innovation and the circular economy, or the CFRA conferences on Climate-Related Financial Reporting and Accounting for Cyber Risk.

Regular internal seminars stimulate sharing of early-stage research findings. Subject-specific reading groups allow in-depth analysis and peer review of papers for journal submission. In addition to termly faculty meetings, an annual faculty Away Day encourages all staff to engage in discussions about research strategy direction and execution.

Research support team size and roles

The research support team has grown. Major changes include increased administrative support (from a headcount of three in 2014 to eight in 2020) for research operations, grant developments and applications, an experimental lab manager and an impact and engagement manager.

Departmental and University grants staff work together to support the entire funding life cycle: identifying opportunities and proactively contacting faculty to encourage applications (University Grants Officer, working part-time at CJBS), facilitating submissions and costing bids (Senior Grants Facilitator), peer reviewing of case for support (Director of Research and faculty colleagues), contracts and invoicing (central University grants team), and financial administration, audits and funder reporting (Research Finance Administrator).

The Research Manager's responsibilities increased in response to growing requirements for research ethics and data protection review for faculty and research students. Events, travel and casual research staff facilitation are handled by two full-time Subject Group Administrators.

A dedicated Experimental Lab Manager facilitates behavioural research across the School, advising researchers on methodology and research design, supporting them in statistical and other data analysis and providing logistical support in running experiments in the CJBS lab and online. A dedicated pool of volunteer participants is managed via SONA software. Further, in response to growth in the number of interdisciplinary research centres and the need to secure external funds for their work, a new post was created to support research grant holders, working alongside the Senior Grants Facilitator. Also, the University appointed two Grant Support Officers to work directly with PIs on proactively identifying funding and developing new proposals, one of whom hot-desks once a week within the research support team at CJBS.

Infrastructure supporting impact activities

In line with our deep engagement research strategy, the role of Research Engagement and Impact Manager was created in 2019 to facilitate faculty interactions with practitioner and policymaking bodies. This role facilitates the submission of case studies to the CJBS Collection at The Case Centre, administers awards for the development of case studies and practitioner articles, and leads workshops for faculty on practitioner engagement and impact. She also facilitates faculty participation in University initiatives such as the Centre for Digital Built Britain (Barrett) and at practitioner-funded arrangements such as BT-Huawei (Howard-Grenville) and Aviva (Kattuman), and provides support for writing impact-related grant documentation.

3.3 Facilities

Research student facilities

The office workspace offered to research students was upgraded in 2015, providing desk space for all students. Students also share communal areas in one location, to create a greater sense of collegiality and community.

Library and information services

Alongside college resources and the University's legal deposit library of over seven million volumes, our 24/7 Information and Library Service offers access to business information databases, (including Business Source Ultimate, ABI Inform, Factiva, Bloomberg, Euromonitor Passport, EIKON and Investext) and classroom sessions and one-to-one training on literature searching and bibliographic resources, presentation software, social media and Qualtrics software, and GDPR compliance. These services are augmented with blogs, instant chat service and support tutorials. Researchers can also take advantage of bespoke quantitative and qualitative analysis software training, delivered in person or online. A dedicated research support librarian supports student and faculty researchers in person and over Zoom/Teams.

IT support

The UoA has 4.5 FTE for IT support and 2.5 FTE for AV support. We have developed new tools for research staff collaboration within the University and with external partners, for example using Office 365 over the past few years and ensuring staff are GDPR compliant.

In response to COVID-19, IT support has changed markedly since March 2020. We built five pop up studios for teaching, live streaming and webinars. These are used by faculty to share their latest research as well as by Executive Education to deliver programmes online. Faculty all have laptops/webcams for teaching on site or at home, and our PhD students access their data and apps through VPN to the School computer systems.

How infrastructure, facilities and expertise support impact and cross-HEI collaboration

The building expansion has provided more lecture theatres, seminar rooms and dining/socialising areas on site which are used to host conferences and other events. Recent examples include the Frontiers of Social Innovation Conference (January 2020) and Wo+Men's Leadership Conference (June 2019).

The digital learning studio enables the production of podcasts and webinars that highlight research findings and their relevance to practitioners and policy makers, thereby facilitating engagement with multiple audiences. During the COVID-19 crisis, many planned workshops and conferences took place virtually, such as the Risk Centre's Annual Summit "The Resilient Company – Managing

Business Risks” in June 2020, which addressed practitioner responses to the crisis, and Subject Group seminar series.

Looking externally, CJBS jointly sponsors sharing of research infrastructure for impact and outreach activities with partner HEIs. Of note, CDI collaborates with Warwick Business School on digital health and provides outreach by engaging with the healthcare ecosystem through research forums at the Shard in London, and research impact forums across the Cambridge innovation ecosystem.

Significance of major benefits-in-kind (for example, donated equipment, sponsorships secured, or other arrangements directly related to research)

Sponsorship to research Centres enables research dissemination through reports and events, e.g. the World Bank supported CCAF’s Global Regulator Survey and Goldman Sachs and the China Women’s Development Foundation sponsored the Wo+Men’s Leadership Conferences. The Women in Technology Challenges events were sponsored by Amazon, GSK and Microsoft.

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

4.1 Contribution to the Research Base within Subject Groups

Below, we highlight key contributions of Subject Groups to the field of management through scholarship, editorial roles, keynotes and other major markers of distinction.

Economics and Policy

The Economics and Policy group's contributions to the research base have focussed on three interconnected areas: sustainability; business performance; and technology and innovation. Their work has had national and international influence on energy policy, the circular economy and technology and innovation policy. Pollitt provided leadership as Fellow and Joint Academic Director of the Centre on Regulation in Europe and as elected Vice President for Publications, International Association for Energy Economics (IAEE). Pollitt also gave the keynote for the IAEE European Meeting 2019 and the Beesley Lecture in 2018 and 2016. Researchers also contributed to the field through editorship roles in leading journals, including the *Cambridge Journal of Economics* (Kitson, Runde); *Cambridge Journal of Regions, Economy and Society* (Kitson); *Economics of Energy and Environmental Policy* (Pollitt); *Review of Industrial Organization* (Guest editors – Special Issue 2019) (Genakos and Pollitt); *California Management Review* (Guest Editor Circular Economy Special Issue 2018) (Soufani).

Finance

The Finance group has made internationally recognised contributions to research in corporate finance, asset management and fintech. Rau became President of the European Finance Association in 2014, and Chambers, Kirilenko, Lambrecht and Sarno were made Research Fellows of the Centre for Economic Policy Research. Lambrecht gave several prominent keynote lectures, including: XXVII International Conference on Money, Banking and Finance, 2018; International Symposium in Finance, 2018; Scottish Conference of the BAFA, 2015; Annual Real Options Conference, 2015; and Belgian Financial Research Forum, 2014. Awards include: Best Paper in Asset Pricing and Investments, 2018 FMA European Conference (Chambers); Best Paper, FIRN Annual Conference, CFA Institute, 2017 (Sarno); Graham and Dodd Best Perspectives Award, *Financial Analysts Journal*, 2016 (Chambers and Dimson); FMA Best Paper in Corporate Finance, 2015 (Rau); and International Finance and Banking Society best paper, 2015 (Rau). Faculty held editorships in major journals including *Financial Management* (Rau: Editor; Lambrecht: Associate Editor (AE)), *Journal of Investing* (Dimson: AE), *Journal of Corporate Finance* (Lambrecht: Editor; Rau: AE), *Journal of Banking and Finance* (Lambrecht, Rau, Sarno: AE), and *Review of Finance* (Lambrecht: AE).

Accounting

The Accounting group contributed across a number of areas including: examining how US insurers can obfuscate underlying financial health (discussed at the International Accounting Standards Board); guiding UK audit regulators on identifying potential financial reporting fraud; and revealing the potential for politically-connected insiders to exploit private information about government bailouts (awarded a Wharton research prize). The group convened specialised conferences (supported by IASB, FRC, FCA, amongst others), and frequently contributed to meetings and research discussions with regulators and standard-setters. Jagolinzer was also editor for the *Journal of Financial Reporting*, and provided the Teaching Effectiveness Lecture, Deloitte & American Accounting Association Doctoral Consortium (2019-20). In 2018, he was awarded the Jacobs Levy Equity Management Center, Wharton School, University of Pennsylvania Research Paper Prize.

Marketing

The Marketing group's contribution to the research base has primarily been in econometric modelling of behaviour, marketing strategies especially around innovation, and the behavioural study of decision-making. A distinct feature is their emphasis on developed and emerging economies. Researchers achieved numerous awards. Prabhu won the Award for best 2019 paper, *Journal of Marketing*; AMA Global Marketing Research Award 2019; Gerald E. Hills Best Paper Award 2018; and the Chartered Management Institute's (CMI) Management Book of the Year Award, 2016. Mak received the third prize, Innovation Management Best Paper Award, EBS Business School, 2015. Khwaja received an Honourable Mention, Ken Arrow Award for best paper in Health Economics 2015. Prabhu was recognised as Best Reviewer, *Journal of Marketing*, 2019 and 2018. Editorships and board memberships include the *Journal of Marketing* (Associate Editor, Prabhu); *BMJ Innovations* (Associate Editor, Prabhu); *Journal of Management Studies* (Editorial Advisory Board, Prabhu); *European Journal of Marketing* (Senior Advisory Board, Prabhu); *Production and Operations Management* (Editorial Review Board, Mak); *Management Science* (Associate Editor 2016-18, Khwaja); *Marketing Science* (Editorial Review Board, 2016-18, Khwaja). Leadership roles in convening scholarship include: Program Committee Member, Asia-Pacific Association for Consumer Research Conference, 2015 (Mak); and INFORMS Marketing Science session organiser and Doctoral Consortium Faculty 2017, 2015 (Khwaja). The group also invested in practitioner-focused outputs in Chinese. Mak contributed to Chinese-language publications with Fudan University Press, and Yin in *New Fortune* (equivalent of *Fortune Magazine*) and the 21st Century Business Herald (leading Chinese economics newspaper).

Operations and Technology Management

With methodological expertise in empirical work, laboratory experiments and mathematical modelling, the Operations and Technology Management (OTM) group contributed to the research

base in innovation, healthcare operations, operations strategy, and supply chain management and risk. Notably, Erhun co-chaired the POMS International Conference, Brighton 2019, and Scholtes gave the keynote lecture. Recognition of the group's contribution includes: 2019 *International Journal of Operations & Production Management* Best Paper runner up (Lawson); 2018 INFORMS TIME Best Working Paper (Kavadias, Oraopoulos); 2017 EurOMA Harry Boer Best Student Paper (supervisor: Lawson); 2016 MSOM Best Student Paper (supervisor: Scholtes); 2015 MSOM Best Paper (Erhun); Healthcare Application Society Distinguished Scholar, INFORMS 2018 (Scholtes); 2017 *Production and Operations Management* Outstanding Reviewer (Lawson). Editorship roles include: *Management Science* (Kavadias, Scholtes - Founding Department Editor for Healthcare Management); *MSOM* (Erhun, Kavadias); *Operations Research* (Ralph – Department Editor of Environment, Energy, and Sustainability of Operations Research); *OR Letters* (Associate Editor, Jiang). Editorial board membership includes *Production and Operations Management* (Davies, Erhun, Hutchison-Krupat, Kavadias).

Organisational Behaviour

The Organisational Behaviour group contributes to fundamental and applied understandings of individual and group behaviour within organisations. They are distinct in their diversity of methods (e.g. big data, psychometrics, experiments, surveys, etc.) and topics (e.g. leadership, creativity, personality, emotions, teams). The school's Psychometrics Centre is run by a member of the group (Stillwell). Recognition is evidenced in prizes: Menges won the Annual Prize for the Best Leadership-related Article, Institute for Leadership, Ivey Business School, 2019; the Best Reviewer Award, *Academy of Management Journal*, 2017; and the best Annals Article of the Year Award, *Academy of Management Annals*, 2015. Sah achieved the Social Science Research Network Top Ten Paper Download List in 2018, 2016, 2015 and 2014 and was a Finalist, Best Paper Award in the Fields of Experimental Economics, Behavioural Economics and Decision Theory, Exeter Prize, 2014. Sah held a series of prestigious fellowships at Cornell University (Institute of Social Sciences, 2018-19, Half-Century Club Faculty Research Fellowship, 2017-19, Balen Sesquicentennial Faculty Fellowship, 2015–20) and a Russell Sage Visiting Scholar Fellowship (2019-20) Editorships include: *Applied Psychology: An International Review* (Richter); *Journal of Applied Psychology* (consulting editor: Richter); and Editorial board memberships on: *Leadership Quarterly* (Menges); *Academy of Management Journal* (Menges, Richter) and *Organizational Behavior and Human Decision Processes* (Sah). Sah was Commissioner on the National Commission of Forensic Science (U.S. Department of Justice 2015 – 2017) and wrote a pivotal report for the Australian Royal Commission into Misconduct in the Financial Services (2018).

Organisation Theory and Information Systems

The Organisation Theory and Information Systems (OTIS) group are committed to qualitative methods to investigate grand challenges, including environmental sustainability, social change and entrepreneurship, child sexual exploitation, digital health and use of data analytics. Contributions have been made to Research Councils. Barrett is on the ESRC's Expert Advisory Group on the Global Challenges Research Fund and was an external evaluator on UKRI Digital Innovation for Development. The group's research has been recognised through numerous awards, including: 2018 Leverhulme Award (Haugh); 2016 Distinguished Scholar Award, OCIS Division, Academy of Management (AoM) (Barrett); 2016 *Academy of Management Journal* Best Article Award (de Rond); 2017 IACMR Presidential Awards for Responsible Research in Management (Howard-Grenville, Grimes); 2017 Best Paper Award, RM Division, AoM (Roulet); 2018 *Academy of Management Annals* Best Article Award (de Rond); 2018 *Academy of Management Discoveries* Best Article Award (Haugh); 2018 EGOS Best Book Award (de Rond); Finalist, 2019 George R Terry Book Award, AoM (de Rond); Honourable mention, 2018, Outstanding Qualitative Book Award, Society for Qualitative Research (de Rond). Several members received Best Reviewer Awards from AoM divisions (Roulet, Grimes, Howard-Grenville). Members held editorships for *Academy of Management Journal* (Deputy Editor; Howard-Grenville), *Information & Organization* (Co-Editor-in-Chief, Barrett, Senior Editor; Jones); *MIS Quarterly* (Senior Editor 2013-15; Barrett), *Organization Studies* (Senior Editor; Jones). Barrett gave the 2019 Changing Nature of Work Keynote at International Conference on Information Systems and the 2016 OCIS keynote at the AoM Annual Meeting, and Howard-Grenville gave the 2020 EGOS keynote. Editorial board membership included: ASQ (Grimes, Howard-Grenville, Tracey) and *AMJ* (Howard-Grenville, Tracey).

Strategy and International Business

This subject group has advanced understanding on critical competitive, economic, social and environmental issues facing organisations, and gender diversity amongst senior leadership and corporate boards. It has distinguished itself in producing leading research on how corporations achieve and sustain competitive viability, and on the social and environmental footprints of governance systems. Their contribution has been affirmed through awards, including Best Paper Award EGOS Colloquium, 2018 (Ansari); CK Prahalad Best Paper Award, SMS, 2018 (Paolella); Best Paper Award, EURAM, 2016 (Ansari); Emerald Citation of Excellence Award, 2016 (Kor, Paolella); Best Paper Award, AoM, 2019 (Kroezen); Finalist, Hunt/Maynard Award, 2019 (Hadida); and Associate Editor *Academy of Management Journal* (Nadkarni 2018-19). Ansari was also made an Honorary Fellow, UCL. Notable keynotes include Ansari at the AoM 2019 and SMS 2019, and Hadida at the Mallen Film Conference 2016. Supporting early career research, Hadida chaired the AIMAC Doctoral Symposium 2020, and Kor co-chaired the SMS Doctoral Workshop 2017.

4.2 Approach to Research Collaboration, Networks and Partnerships

Cambridge cross-departmental collaboration

A foundational part of CJBS's research strategy is participation in multidisciplinary research initiatives and collaborations across Cambridge, as highlighted in Figure 2. The Finance Group, with Cambridge Endowment for Research in Finance (CERF) based at CJBS, has facilitated collaborations across Mathematics, Economics, Land Economy and CJBS. CERF has an annual research budget of c.£0.8m which in this period has supported interdisciplinary research at Cambridge through research grants and the CERF Fellowship scheme. It also organised a regular series, "CERF in the City", which showcases research to practitioners in the City of London. CERF organised external networking through two-day research workshops for faculty and research students in collaboration with the Blendheim Center, Princeton (2014, 2015, 2016), Duisenberg/Tinbergen Institute (2014), and University of Lausanne and École Polytechnique Fédérale de Lausanne (2018, 2019).

The Centre for Risk Studies (CRS) has worked with cyber initiatives across the University including Cambridge's Centre for Financial History, Academic Centre of Excellence in Cyber Security Research, and Trust and Technologies Strategic Research Initiative. CRS organised "The Future of Cyber Risk" conference, July 2019, with the Cambridge Computer Science Department and Cambridge Cybercrime Centre. CRS wrote two cyber disaster scenarios in 2019 with the Insurance Risk and Finance Research Centre at Nanyang Technology University. CRS collaborates closely with Cambridge Zero (climate change initiative across Cambridge), which cites CRS's Cambridge Global Risk Index for economic assessment of climate risks.

Research collaboration with universities (inter)nationally and with users and beneficiaries

The Organisation Theory Research Group (OTREG) is a collaboration between CJBS and Imperial College. It brings together organisation theorists and scholars from related areas across UK and European universities to discuss and advance research on organisation theory. The group provides developmental support of scholarly research for publication and provides a community of scholars which extends to include an increasing number of North American researchers.

The Energy Policy Research Group developed longstanding collaborations between University departments (Economics, CJBS) to tackle big challenges in energy regulation, decarbonisation and climate change across physical and life sciences and the humanities and social sciences (Pollitt, Reiner, Ritz, Mohaddes, Taylor). It also linked with nine corporate sponsors (EdF, RWE, Centrica, National Grid, Shell, UKPN, Enedis, Engie and Macquarie) and three sponsoring government bodies (Ofgem, BEIS, NAO). Internationally, it networked with universities through the HKU-Cambridge Clean Energy platform and supported project-based researcher exchanges,

as part of its In Search of Good Energy Policy initiative, which led to collaborative research, publication and grant applications.

The Centre for India & Global Business links to the University-wide Global Energy Nexus in Urban Settlements Research Group on [energy innovation for low-cost housing in India and South Africa](#). At Cambridge it included academics from Geography, Architecture and Engineering. Beyond, it comprised a consortium of universities and organisations in South Africa (Energy Research Centre; African Climate and Development Institute, University of Cape Town) and India ([Indian Institute for Human Settlements](#), Bangalore; [Indian Institute for Technology, Bombay](#); [Doctors for You](#); [Mumbai Metropolitan Region Development Authority](#)).

The Circular Economy Centre (CEC) has been an active member of the inter-departmental Cambridge Circular Plastics Centre, developed by seven Cambridge departments to respond to challenges posed by plastic waste, and supported by the EPSRC. CEC partnered with two European academic institutions and three industry bodies: Écoles des Ponts ParisTech (France); Foundation for Research and Technology (Greece); telecoms firm Cablenet Communication Systems (Cyprus); consultants BlueSoft (Poland); and Deloitte (Belgium). It was supported by a European Union grant (€1.7m 2018-22) to exchange expertise on the circular economy and the Internet of Things.

Lu, in Marketing, collaborated with the Institute for Sustainable Innovation and Growth, Fudan University School of Management, and Penn State University on artificial empathy studies. This generated new collaborative research on how to use AI and consumer data to improve customer value and business performance while preserving privacy.

De Rond, in Organisation Theory and Information Systems, conducted a two-year field study of paedophile hunting as a problematic form of social organising. This project built international research collaborations with Macquarie University (Australia), MIT Sloan School, and forensic linguists at Aston University. In fieldwork, de Rond worked closely with a national task force comprising Police Chiefs for England, Scotland and Wales, the Home Office, National Crime Agency, Crown Prosecution Services, and College of Policing.

Collaboration and engagement with policy makers and practitioners

As part of the CJBS approach to deep engagement, faculty frequently work directly with policy makers and practitioners on policy relevant research. Examples include:

Accounting: Jagolinzer and co-authors engaged with US bank regulators, the Department of Justice, and the Securities and Exchange Commission on whether their findings on insider trading implied a need for enforcement actions.

Cambridge Centre for Financial Reporting and & Accountability: Chu worked with the Financial Reporting Council and Financial Reporting Lab to develop guidelines for informative financial reporting and effective enforcement of financial reporting quality.

Cambridge Centre for Alternative Finance: collaborated with the UK Department for International Development and with a corporate partner (Invesco) to develop and disseminate knowledge on alternative finance and regulatory compliance for global regulators. They also collaborated with the World Bank to develop the Global Market Ranking & Regulator Survey.

Centre for India and Global Business: engaged with the Commonwealth Secretariat (2018-19) to develop a frugal innovation report and toolkit for policy makers across all Commonwealth countries. The report and toolkit helped educate policymakers on using ubiquitous tools and resources to innovate faster better and cheaper within government and across their wider ecosystem and economy.

4.3 Contribution to Economy and Society

CJBS seeks to be responsive to new and urgent challenges and national and international priorities, including climate change and challenges linked to COVID-19. This section highlights regular and sustained contributions by CJBS research groups to economy and society.

4.3.1 Contributions in Health Care

The Cambridge Centre for Health Leadership and Enterprise (CCHLE) works closely with secondary and primary care providers to build health system capacity and provide quality and inclusive healthcare across Cambridgeshire. The Centre has become an established platform that promotes joint learning between academics and healthcare leaders. Since 2014, joint faculty and PhD student teams worked closely with the Cambridge University Hospital NHS Foundation Trust to improve care capacity and accountability (published in *Management Science*, 2017). Collaboratively, they identified a need to clarify and develop Clinical Directors' roles and capacities. Subsequently, the hospital commissioned a Clinical Directors Leadership Programme from CCHLE. In 2019-20, CCHLE developed the Cambridge Primary Care Innovation Academy to help develop the next generation of primary care leaders. They plan to scale the programme to other regions in the UK, engaging other primary care practices and universities.

From March 2020, CJBS rapidly expanded health care engagement to support local, national and international responses to COVID-19. East of England NHS and PHE leaders approached CJBS to request support in collecting evidence and intelligence for regional pandemic response planning and operation. The Centre for Health Leadership & Enterprise put together a team of four faculty

and four PhD students who formed the nucleus of a new East of England Joint Evidence and Intelligence Cell (JEIC) between the School and NHS and PHE partners. A regional complement to SAGE, the team provides modelling support and contributes weekly data analytics, fast-tracked ad-hoc research projects and continuous advice in weekly meetings of the Regional Leadership Team of the NHS/PHE. The NHS and PHE provided funding to rapidly scale up to improve health data analytics capabilities to support the 6.5M people in East of England region. CCHLE collaborated with *Cambridge Centre for AI in Medicine* and *Università della Svizzera Italiana* to develop rapid COVID-19 modelling support. They helped the regional health system to develop capacity plans that incorporated policy impacts and local dynamics in the short term, and built systems-based, systematic modelling capabilities in the medium to longer term (Kattuman, Scholtes, Jiang and Erhun). A highly effective cross-organisational mode of working evolved, founded on regular discussions with regional and local decision-makers responsible for COVID-19 responses about how the analysis could be tailored to meet changing needs during the pandemic. These new ways of working have contributed to research on organising health care under crisis (Munir, Howard-Grenville).

4.3.2 Contribution to Business Economy and Public Services

CJBS contributes to business and the economy by encouraging practice-based research and through the delivery of executive programmes that draw heavily from the research Centres and their emerging insights. Executive Education draws expertise from across the University, including Criminology, Education, Computer Science and Engineering. For example, a programme for the Indian Police Service was developed collaboratively with the Centre for India & Global Business and Criminology, and programmes for the Delhi State Schools were developed with the Faculty of Education.

The deep engagement approach positioned CJBS to readily support businesses at the onset of COVID-19. The *Centre for Risk Studies* provided briefings to support businesses in triaging epidemiological data, providing insight on government and public health responses, and offering economic measurements and forecasts. Executive Education collaborated with The Entrepreneurship Centre and Barclays and introduced an online programme on “Getting back to business”. This provides SMEs with the needed resilience to look for growth in a radically changing business environment.

On an individual basis, CJBS faculty also provided thought leadership in business research on COVID-19, aimed at enabling effective policy responses. Howard-Grenville gave the keynote speech at the European Group for Organizational Studies conference (July 2020), on viewing the world as systems of interdependent activity in light of COVID-19. CJBS and Pembroke College, Cambridge, co-hosted a moderated conversation on COVID-19 and economic policy between

Lord Chris Smith and Baroness Shirit Vandera (Chair of Prudential). Recent publications contributed to the knowledge base on COVID-19 and business studies, including de Rond in *Journal of Management Studies* on COVID-19 and understanding of risk; Sah in *Nature Human Behavior* on effectively managing the COVID-19 transition and Boisseau-Sierra in *The Conversation* on common flaws in public health and economic data in basic accounting.

4.3.3 Contribution to Society and Global Challenges

Research and engagement on Grand Challenges and the SDGs

Grand Challenges and SDG related research featured across Subject Groups on issues including climate change, poverty, IT and development, displacement/refugee crises, frugal innovation and technology-enabled social and financial inclusion. Specific centres, e.g. the Circular Economy Centre (Soufani), Cambridge Digital Innovation (Barrett) and the Centre for Social Innovation (Tracey, Stott), focused on Grand Challenges.

CJBS management researchers engaged in research to support a more socially inclusive society. Howard-Grenville co-authored two significant pieces on grand challenges (George *et al.*, 2016; Howard-Grenville *et al.*, 2014) which have been pivotal in building conversations in this area in the *Academy of Management Journal*. She was also guest Co-Editor of a highly successful special issue (with an unprecedented number (60) of submissions) in *Academy of Management Discoveries* on the UN SDGs and sustainable development (2019). Grimes was a Finalist for the Third Annual Award for Responsible Research in Management for his work published in *Journal of Business Venturing* on B Corp certification.

PhD students have been encouraged to pursue research related to Grand Challenges. This included research on the opioid crisis (Bobroske); environmental waste (Systke); socially responsible investing (Vaska) and refugee crises and homelessness (Claus and Frey). Since 2019, the Organisation Theory & Information Systems subject group has provided a MPhil seminar in “Field Research in the Era of Grand Challenges.”, which was well attended, highly rated by students, and spawned a research workshop on the topic.

Climate change and the Cambridge Zero Initiative

CJBS provides foundational research and collaborations to address climate change. Early work by CJBS research (Hope) with other researchers and policymakers combined the science and economics of climate change to develop the Policy Analysis of the Greenhouse Effect (PAGE) model. Simply put, this Integrated Assessment Model calculates the social cost of carbon dioxide emitted today, or the amount each additional tonne of carbon dioxide emitted today will cost the global economy in the future. PAGE was used in a landmark economic study into the impacts of

climate change published by the UK government in 2006, the Stern Review. During this REF period, the PAGE model was used by the UK Met Office, UK BEIS and US Environment Protection Agency, among others. This led to further research by Hope with international collaborators, which used PAGE to predict permafrost thawing rates.

From November 2019, expansion of CJBS work on climate change took place through the EPRG, alongside a new University-wide Centre for Climate Repair and Cambridge Zero, a Cambridge-wide initiative aimed at harnessing research and policy expertise to develop solutions for livelihoods, society and economy. CJBS researchers (Howard-Grenville, Reiner, Pollitt, Soufani) and centres (Energy Policy Research Group; Circular Economy Centre; Centre for Risk Studies) have been central in supporting Cambridge Zero. Reiner helped to lead the University's engagement with the Global Alliance of Universities on Climate (launched January 2019), while the Centre for Risk Studies ran an event on 'Business Risk from Climate Change' (Feb 2020) with speakers from the UK Met Office, Nestlé, Citi and HSBC. This kind of collaboration on key societal and global challenges is expected to be a focus through into 2028.

Going forward, CJBS is well positioned to contribute to management research, and to wider economy and society by growing its strategic, innovative and multidisciplinary initiatives. CJBS's leadership, institutional support, collaborations and networks, as outlined in this statement, provide key foundations and strengths for realising this next stage in the School's growth in a post-COVID-19 world.