

Institution: Nottingham Trent University (NTU)
Unit of Assessment: C17 – Business and Management Studies
<p>1. Unit context and structure, research and impact strategy</p> <p>Context and Structure</p> <p>Nottingham Trent University's submission to REF sub-panel C17 catalogues the research activities, growth and achievements of Nottingham Business School (hereafter NBS) and its five constituent departments (Management, Human Resource Management, Marketing, Accounting and Finance, Economics). Most research within NBS is interdisciplinary by nature and benefits from participation from, and collaboration across, all departments. In order to create critical mass and provide dynamism to major and distinctive strands of research, strategic investment since 2014 has primarily focused on the creation of a coherent and systemised set of Research Centres:</p> <ul style="list-style-type: none"> • <i>The Responsible and Sustainable Business Lab (RSBLab)</i> • <i>The Centre for People, Work and Organizational Practice (CPWOP)</i> • <i>The Centre for Work, Informalisation and Place (CWIP)</i> • <i>The Centre for Economics, Policy and Public Management (CEPPM)</i> • <i>The Centre for Behavioural Science (CBS)</i> • <i>The Centre for International Business, Strategy and Decisions (CIBSD)</i> <p>Research Strategy</p> <p>NBS's research environment, activity, output and impact have seen transformational growth in quality and quantity since REF2014. This is due to a sustained and purposeful programme of research development and investment. The enhanced research capacity of the School is evident in:</p> <ul style="list-style-type: none"> • an increase in high-quality research outputs, with 256 articles published in ABS ranked 3* and 4* journals between 2014 and 2020, compared with 51 in the previous REF period. • an associated growth in the number of staff whose work was returned in REF2014 from 26 (23.0 FTE) to 64 (57.5 FTE) and the development and delivery of outputs in new research areas. • a sustained increase in annual research grant income from £86k in 2013/14 to £540k in 2019/20. • an uplift in doctoral completions from 77 in REF2014 to 105 in this return. <p>In addition, NBS has expanded the impact of its research, as illustrated by impact case studies on the fire and health services, the regulation and prevention of modern slavery, support for competitiveness, growth and innovation in SME's and gambling taxation policy. Further notably impactful research relates to employee engagement and voice, values-based management, and local and regional economic regeneration. These factors were central to the School's EQUIS accreditation in 2017, subsequent to its AACSB accreditation in 2016. The 2017 EQUIS accreditation report noted "<i>impressive advances in research during recent years</i>" whilst the 2020 EQUIS reaccreditation report observed that "<i>the profile of faculty and research has increased over the last three years with successful faculty development and new recruitments</i>". Together, these independent insights testify to NTU's strong progress in research since REF2014.</p> <p>This increased level of research vitality is the direct product of our Future Research Strategy summarised in REF2014:</p>

1. To increase the output of high-quality research, especially research that is world leading or recognised internationally as excellent.
2. To broaden the research base in terms of the proportion of academic staff actively engaged in research.
3. To enhance the impact of NBS's research, on: (a) public policy and services, and (b) economic commercial and organisational practice. This is exemplified by the NBS impact case studies.

This statement outlines these developments and demonstrates that NBS is now a significant contributor to business and management research before setting out its ambitious plans for the medium term.

1.1 NBS Research Strategy Implementation 2014-2020

NBS's research strategy flows directly from its long-standing mission to '*deliver education and research that combines academic excellence with positive impact upon people, business and society*'. NBS's underlying philosophy is to have broad and direct engagement with external organisations so as to optimise the overlap between its research, education and business engagement which mutually benefits all of its activities. As such, the NBS approach to research necessarily embodies impact as a factor which simultaneously informs its research agenda and is a fundamental part of its research contribution.

The School vision for research and impact embodies its aspirations across three fronts:

1. To make a multidisciplinary contribution and associated impact through outputs in internationally excellent and world-leading peer reviewed journals.
2. To have direct impact on organisations via the translation and influence of research findings and insights into business and regulatory practice.
3. To have a socio-economic impact on society through the diffusion of contemporary business research that feeds into the education and training of current and future organisational leaders, managers, practitioners and regulators.

To meet the aspirations of its Future Strategy in REF2014, NBS identified a set of actions to establish the School's research credentials and identity at an international level. The elements underpinning a strategic step-change in research performance, are:

1. The installation of a mature infrastructure of research leadership and management.
2. A sustained development of research capacity: the Individual Research Plan system implemented in 2014-15.
3. A Recruitment and Development Policy that identified gaps in senior research leadership in 2014/15. This generated a set of recruitment priorities over the period 2015-2020 as part of a purposeful recruitment and staff development policy of attracting and investing in research active staff at all academic levels.
4. A revamped professional research infrastructure.
5. The systemised organisation of distinctive research and impact with the creation and development of Research Centres to provide critical mass and dynamism, including the identification of new areas of distinctive research strength.
6. Enhanced engagement with end-users via a new International Research and Impact Advisory Board.

1.2. The Implementation of the Research Strategy since 2014

This section provides more detail on each element of the strategy, the evidence for NBS's achievements, and its ambitions to 2025.

1.2.1. Leadership and Management

As noted in the NTU Institutional Environment Statement (REF5a), in the wake of REF2014 the University and NBS set about establishing a coherent infrastructure of research leadership and management, including appointing an Associate Dean for Research (ADR) for the School, Professor Alistair Bruce. He is a senior member of the NBS Executive Team and chairs the Research Strategy Group, which has responsibility for setting the School research strategy and direction, developing the annual School Research Plan, monitoring progress and reporting to the NBS and NTU senior management teams. Membership of the Research Strategy Group includes the NBS Dean, the six Centre Directors, the five Heads of Department and Departmental Research Co-ordinators, and the NBS Impact, Athena Swan, and Race-Equality champions.

NTU is committed to the highest standards of integrity and probity in research conduct. The University expects all those engaged in research to hold individual and collective responsibility to uphold principles of research integrity. Matters relating to research integrity, including ethics, are overseen centrally and managed locally. Robust scrutiny of projects undertaken by staff and PGRs within the Unit of Assessment (UoA) is overseen by a committee including reviewers from the Schools of Social Science, Law and Business. This ensures projects are scrutinised from different disciplinary perspectives. Training resources are available to all staff and students in the form of online modules which cover different aspects of research integrity. This central resource complements training arrangements at local level.

The School also has a Research Degrees Committee (SRDC), chaired by the ADR, which includes directors of doctoral programmes and Research Centres. The SRDC links to the University Research Degrees Committee.

As noted in the NTU REF5a, the ADR is a member of the University's Academic Research Leadership Team as well as the University Leadership Team. These arrangements support strong alignment between institutional and UoA level strategies.

1.2.2. Sustained Research Capacity Development - The Individual Research Plan system

After REF2014, NBS pioneered within NTU a much more structured and transparent approach to the allocation of research time in order to support existing staff with the ability or potential to deliver high-quality research. Through the Individual Research Plan system, academics make an annual request for an allocation of research hours within the workload planning process. The bids are assessed on capability to deliver at the requisite level based on previous performance across, for example, journal publications, impact-generating activity, and research funding applications and successes (with allowance for stage of career and other key equality and diversity characteristics). The process is managed by the NBS Research Strategy Group. This performance-based approach to research time allowances has led to the sustained increase in both quantity and quality of outputs and hence in the quantum of hours dedicated to research over recent years. This ensures that responsibility for research is focused on colleagues with the capacity to deliver the research strategy. These increases found support in the University pathway system (see NTU REF5a) and thus by 2019-20 sixty four members of staff, of whom over one-third were in the early career stage, received reduced teaching and administrative workloads to allow significant dedicated hours to conduct research. This has facilitated an increase in members of staff whose work was returned from 26 in REF2014 to 64 in the current exercise.

1.2.3. Recruitment and Development Policy

A further major change has been evidenced in NBS's recruitment and development policy. Firstly, identification of gaps in research leadership has driven targeted recruitment in these areas. Secondly, recruitment more generally has involved an increasingly stringent research condition, with the aim of employing colleagues with high-quality research training and an established record of research activity. Thirdly, the School has invested in systematic support for the development of research-active staff at all levels, through transparent allocation of time

related to individual research objectives, and support for hosting and participating in international conferences, as well as formal and informal mentoring. This has resulted in a steady and systematic development of a strong research culture at NBS.

The active identification and recruitment of high-performing individuals, especially at more senior levels, on both full-time and fractional bases, and early career colleagues with significant research and scholarly potential, have accelerated the development of this culture at NBS. The School's success since 2014 has, in addition to internal promotions, enabled it to make a significant investment at senior levels with nine new professors and eight new associate professors appointed during the cycle.

1.2.4. A Professional Research Infrastructure

NBS recognised that its research infrastructure needed to reflect best-practice and hence set about delivering this through:

1. investment in twenty-six postgraduate research fellows and research assistants since 2014 to support projects in and the work of Research Centres.
2. introduction of a more robust and systematic doctoral training programme (Section 2.3).
3. creation of an enhanced study-leave programme, benefiting 10% of staff with significant responsibility for research.
4. establishment of a systematic seed-corn fund and a research opportunity fund (jointly £50-£60,000 per annum), for example to enable rapid response research applications or support in respect of revise and re-submit invitations from leading journals.

An award of £100,000 per annum from the University's strategic research fund has further supported a significant enhancement to NBS's subscription to databases across the School's disciplinary range. Further capital funding has supported the establishment of a new behavioural science laboratory (Section 3.3). Together, these initiatives represent major investment in research that has proved crucial in attracting, supporting and retaining top-flight researchers and in creating capacity for long term development.

1.2.5. Systemised Organisation of Distinctive Research and Impact – NBS Research Centres

In order to create critical mass and provide dynamism to major strands of research at NBS, strategic investment has focused on the creation of a more systemised set of Research Centres. Investment in researchers with proven high-level performance and clear potential, along with the step-changes outlined above, has contributed to the creation of a significantly stronger research environment than that reported at REF2014. The strategy has built six strong Research Centres to provide a focus for areas of distinctive research strength and the associated socio-economic impacts beyond the academic sphere (detail in Section 1.4).

Research Centres are formal, cognate and coherent research entities with clear leadership and review processes. They have a multidisciplinary membership ranging from professors to PhD students. They embrace practice and scholarship focused members of staff, thereby reflecting the central importance of impact in research and ensuring that contemporary research informs teaching. All Centres recognise the importance of, and actively nurture, interdisciplinary work where the affiliation of colleagues from other disciplines from within and beyond the institution demonstrates this commitment.

Each Centre is characterised by having a focused purpose and disseminates its research through: publications in ABS or FT-ranked world-leading journals; income generation via funding council awards and government grants that fund capacity building; and project-specific postgraduate research fellows and research assistants. Similarly, each Centre produces distinct strands of impactful research, examples of which feature in the UoA's impact case studies.

1.2.6. Engaging End-Users

An outward looking Research and Impact Advisory Board was established in 2016 to connect more directly academic, practitioner and regulator communities. It meets twice a year, providing opportunities for the School to explain, discuss and seek advice on its research and impact strategy. Business and policy-making members of the Advisory Board provide additional support in relation to the impact of NBS's research, including the framing and development of impact case studies, offering practitioner insights into research funding bids and introducing research opportunities with commercial organisations, exemplified by the Centre for People, Work and Organizational Practice's collaborative research with the Baxi Group and the Chartered Institute of Personnel and Development (CIPD). External senior research academics on the Board provide advice on the research strategy, act as advisors on research funding bids, provide an independent view on the relevance of our research to end-users and the quality of journal outputs, and further link our research to the global business and management research community.

The Board was set up by the Dean, is chaired by the ADR, and comprises senior professors from NBS and a range of external members drawn from business, policymaking and academic circles at local, national and international levels. Business practitioners and policy makers include: Paul Thomas, a Director at Experian, the multinational consumer credit reporting firm; Glyn Morris, a Partner and Head of Finance at Higgs and Sons, one of the Midlands leading law firms; Bill Grimsey, former CEO of both Iceland and Wickes and author of 'Sold Out' (2012), a monograph that predicted changing patterns of retailing and the collapse of the High Street; David Willetts, General Manager of the Baxi Group, one of the UK's leading boiler manufacturers; Matthew Hopkinson, the CEO of the Nottingham-based International Data Company (the UK's leading retail location company); and Wilson Wong, Head of Insight and Futures at the CIPD and an Honorary Professor at NBS. The external academic members include Professor Greg Bamber (Monash University, Australia), Professor Nelarine Cornelius (Queen Mary University of London) and Professor David Knights (University of Lancaster).

1.2.7. Summary

The combined effect of the six elements of the NBS research strategy outlined above is a systematic improvement of NBS's research environment, activity, output and impact. This is evidenced by the fact that in 2019 core full-time academics secured 66 publications in ABS journals ranked as world-leading and internationally excellent compared to 16 outputs in 2015. Similarly, NBS has seen research grant capture grow at the rate of over 40% per annum since 2013/4, resulting in a sixfold increase in annual research income by 2019. NBS continues to accelerate this trajectory by emphasising the importance of externally-funded research. There have also been material shifts in the quality of doctoral students recruited and in examples of NBS research positively impacting practice and policy at the highest levels.

1.3. Future Strategic Research Goals

The next phase of NBS's research and innovation strategy to 2025 will broaden and deepen its existing approach, sustaining its positive shift in research performance over the medium term to deliver a trajectory that will consolidate NBS's reputation as an important international force amongst research-focused international Business Schools. The future strategy has four components:

1. To continue investing in distinctive capability-building for high-quality research, expanding the breadth and depth of our current Centres via further recruitment of research talent at all levels, whilst investing in development and promotion of current staff. This investment is combined with and builds on an accelerating trajectory of success in generating external research funding from DfID, ESRC, AHRC and other bodies, as detailed in 3.2 below.
2. To develop further close collaborations and partnerships with top-flight international research institutions with shared research agendas with the aim of extending the international reach and reputation of NBS's distinctive research and accelerating the emergence of new Centres. This builds on fertile existing collaborations which include

Copenhagen Business School, WU Vienna, University of New South Wales and others (see Section 4.3.2.).

3. To extend research impact through developing strategic partnerships in research with major companies and organisations with shared research agendas. This approach will develop existing collaboration with organisations, such as Refinitiv in Finance, Boots in Human Resource Management, and Fujitsu in sustainability, towards more sustained longer-term relationships, including potential sponsorships of Research Centres.
4. To establish three new self-sustaining Research Centres of international standing, through direct investment in fields that further develop our emerging strengths. These could encompass Marketing and Consumer Studies and Fin Tech as well as areas such as the New Economy, in order to address the business and societal challenges of the future.

These components will in turn enable NBS academics to secure greater visibility as stream presenters, stream leaders and keynote speakers at major global conferences, submit credible manuscripts to world-leading and internationally excellent journals, develop and secure further research grants from funding councils and have greater impact on the organisations with which they work.

By 2025, NBS aims to have more than 100 colleagues who will be international and world leading researchers, making a positive contribution to business and management research at an international level.

1.4. NBS Research Centres

As mentioned in 1.2.5 above, six Centres provide the main vehicle for major strands of research at NBS. Each Centre's primary purposes and priorities are described briefly below.

I. The Responsible and Sustainable Business Lab (RSBLab).

Launched in 2015 and led by Professor Mollie Painter, with membership from across all disciplines within NBS, the RSB Lab works to synthesise ideas that have disciplinary and inter-disciplinary impact on organisational capability. RSB produces cutting-edge research outputs whilst embedding deeper understanding of sustainability in business and management research within NBS, across NTU and beyond. The main foci of RSB Lab's work are: Ethics, Innovation and Entrepreneurship; CSR and Corporate Governance; Pedagogy and Talent Management; and Energy and the Environment.

The Lab's members collaborate widely with international partners (details in Section 4). For example, the Lab has worked on a number of QR-GCRF funded projects in Africa and was recently awarded £140,000 from the UKRI GCRF for a project to extend and consolidate its work in Africa, described in Section 3 below. Lab members publish in internationally excellent and world-leading journals, including *Organisation Studies*, *Entrepreneurship and Regional Development* and the *Journal of International Business Studies*.

II. The Centre for People, Work and Organizational Practice (CPWOP)

Launched in 2015 under the leadership of Professor Helen Shipton with membership predominantly from HRM and Management disciplines, CPWOP is now co-directed by Professors Helen Shipton and Daniel King. CPWOP works to produce research on human resource management and innovation that addresses business and policy imperatives in order to increase performance through effective formulation and deployment of human and knowledge capital. The Centre distils its research on HRM and innovation into two research strands: People, Innovation and Performance, exploring how people support organisational performance and in turn how this impacts on innovation within organisations through investment in effective people management; and Organizing as Practice focusing on 'good work' and 'work quality'.

The Centre's research has led to a series of commissioned projects from the engineering and manufacturing sector (e.g. Baxi Boilers) and a successful tender for a CIPD-commissioned

project investigating Employee Voice at Work. The Centre has also undertaken projects on the treatment of disadvantaged groups in the workplace (including commissioned work for Walgreen Boots) and concepts of 'good work' where current projects focus on meaningful work, health and wellbeing, and improving management development to develop effective workplace democracy. For example, CPWOP recently received £400,000 from the ESRC for a COVID-19 research project described in Section 3. CPWOP members publish in world-leading journals, such as *Human Relations*, and *Organization Studies*.

III. The Centre for Economics, Policy and Public Management (CEPPM),

Launched in 2017, CEPPM, consolidates NBS research on public policy, management and economics under the leadership of Professor Robert Ackrill.

The Centre works to inform, influence and impact economic policy and regulation and public policy, and management, with particular emphasis on: resources and the environment; public services such as health, social care and emergency services; central and local government; and regional economic regeneration. Working closely with government departments, LEPs, councils, NHS Trusts and other agencies, alongside international bodies, CEPPM has delivered publicly-funded commissions to undertake research that has shaped design, delivery and consequent effects of economic policy and practice across a number of areas, including health and emergency services, urban regeneration, and betting taxation.

Working on challenges that help shape policy regionally, nationally and internationally, CEPPM academics lead a consortium that was awarded €4 million to establish an EU Marie-Skłodowska Curie Actions innovative international doctoral training network (Section 4). CEPPM members publish in world-leading and internationally excellent journals. These include the *British Journal of Management*, *Social Science and Medicine*, the *Journal of Economic Geography* and *Research Policy*.

IV. Centre for Behavioural Science (CBS)

The Centre for Behavioural Science, launched in 2018, is led by Professor Thorsten Chmura and has a membership drawn from across all disciplines in NBS. It conducts research into human behaviour in a dedicated laboratory for experimental economics research to inform effective decision-making in business and in policy interventions by government. Methodologically innovative interdisciplinary approaches combine insights from economics, business, management, strategy, human resources, finance, psychology, sociology and politics. As well as laboratory experiments, Centre members conduct app-based and field experiments, combining empirical analysis, econometrics, theory and qualitative methods. Topics of investigation include social behaviour, corruption, energy consumption, traffic, line-management, company and business culture, trust and cooperation in business, companies and institutions, wellbeing, engagement, work motivation, incentives, productivity and happiness.

The Centre has a well-developed collaborative interface with public and private sector organisations, including the NHS, HMRC and the CIPD 'Engage for Success' initiative. The group has secured a recent DfID grant of £320,000 (Section 3) to investigate corruption and its mitigation. Members publish in internationally excellent journals, for example the *Journal of the European Economic Association* on cross-national attitudes to risk and uncertainty.

V. Centre for International Business, Strategy and Decisions (CIBSD)

Launched in 2018, the Centre for International Business, Strategy and Decisions, led by Professor Ursula Ott, has a wide membership from across International Business and Management who focus on multinationals, small and medium sized enterprises, international supply chains, transnational entrepreneurs in emerging markets and cultural adaptation and migration. Market entry strategies and foreign direct investment decisions from and to emerging markets (especially ASEAN and African countries) are analysed from various theoretical perspectives. This involves employing quantitative and qualitative techniques as well as the application of formal modelling and experiments, and innovative approaches such as

experimental research design and fuzzy set Qualitative Comparative Analysis (fsQCA) to current phenomena in international business.

Professor Usha Ramanathan is currently involved in a major UKRI-GCRF funded project (£364,000 to NTU) on sustainable supply chains, (Section 4). Members of the Centre publish in world-leading and internationally excellent journals, such as the *Journal of International Business Studies* and *International Journal of Operations and Production Management*.

VI. Centre for Work, Informalisation and Place (CWIP)

Under the leadership of Professor Ian Clark since 2017, CWIP provides methodologically innovative interdisciplinary studies of contemporary work and employment with particular emphasis on informing policy for informalised labour markets, such as hand car washes, nail bars, and small-scale garment manufacturing. Work in these sectors tends towards casualisation and informalisation where workers operate under business models that embed patterns of labour market exploitation. CWIP has a core membership supported by postgraduate research fellows within NBS and its overall membership extends beyond NBS, into the School of Social Sciences and the Nottingham Civic Exchange which has been supported by almost £750k of NTU resource since its creation in 2015. Current research is themed into three strands exploring informalised labour and work, regulation and enforcement, and spatial analysis of informalised work opportunities.

CWIP secured £110,000 from the AHRC for a project that examines vulnerabilities to modern slavery and predicts the location of informalised workplaces and possible associations with COVID-19. CWIP members work in partnership with the Director of Labour Market Enforcement at BEIS, advising the Director and wider Office on enforcement and licensing arrangements in particular sectors. CWIP also provides bespoke, confidential research-led intelligence reports and presentations for Parliamentary Committees, regulators, other stakeholders and the police (East Midlands Specialist Operations Unit and the Gangmasters' Labour Abuse Authority). Centre members publish in world-leading journals, for example the *British Journal of Industrial Relations*, and *Human Resource Management Journal*.

2. People

2.1. Staffing Strategy and Staff Development

2.1.1. Staffing Strategy in Practice

As noted in Section 1.2.2 and 1.2.3, NBS's staffing and development strategy was central to delivering the ambition articulated in the REF2014 future strategy. In order to ensure the sustainability and vitality of our research community, this strategy is a balanced and purposeful approach to staffing that blends external intelligence-led recruitment with active retention, development and promotion of ECRs and mid-career research-focused colleagues. NBS's commitment to equality, diversity and inclusion is central to all policies and processes relating to its people, in line with the University's institutional commitment.

As previously noted, NBS has recruited nine new professors since 2014, focused on strategic priorities of enhancing the work of existing Centres (Bruce, Collins, Brown and Johnson), developing new areas of research (Clark, Chmura, Kuk and Ott), or supporting the development of emerging-research staff and University Research Themes (Buda). There have been four internal promotions to chair since 2014 (King, Murphy, Ramanathan and Thompson).

In this period NBS has also recruited eight associate professors with strong professorial potential (Ramanathan (2016), Renwick (2017), Giamporcaro (2017), Chapple (2017), Champion (2018), Cheah (2018), Hauck (2019) and Wang (2019)) and promoted a further nine colleagues to associate professor level. Of this cohort, three have subsequently been promoted to professorial level. In addition, over thirty early career researchers (ECRs) have been recruited over the cycle, representing a continued investment in research capacity.

NBS's commitment to a sustainable improvement in research has led to a balanced age profile at NBS that features 34% of staff below the age of 40 and 60% below the age of 50. Sixty-seven per cent of those colleagues below associate professor level in this submission were appointed since 2014. This demonstrates balanced growth in a community where the number of academic staff actively engaged in research has more than doubled since 2015. The balance is also symptomatic of an increased appetite for research and scholarship across the School that in turn testifies to the positive role model influence of leading researchers and the effectiveness of the current research support infrastructure within NBS.

2.1.2. Staff Induction

On recruitment, new colleagues enter a systematic induction process centred on supportive acclimatisation to the NBS culture on research, scholarship and impact. This includes familiarisation with NBS research objectives, strategy and processes, identification of individual research needs and discussion regarding affiliation to Research Centres. NBS's Individual Research Plans and workload allocation system complement this (as noted in Section 1). Induction and effective workload allocation are reinforced with systems of support centred on mentoring and development activities both within Research Centres and at a School level.

2.1.3. ECR Specific Support

The recently enhanced programme of ECR mentorship builds on key features of our existing approach to distil aspects of international best practice in ECR mentorship programmes by providing a structured mechanism to guide all of our new ECRs towards achieving their research-career ambitions and potential. It facilitates the transmission of generic and specialist knowledge on all facets of academic research activity between experienced and ECR academic staff. For example, NBS has a mentor-mentee review process for both manuscript submissions to journals and the resultant referee reports, followed by the formulation of an appropriate course of action. The latter may include an application to the NBS Research Opportunities Fund to reduce administrative or teaching commitments to enable meeting of a re-submission deadline.

2.1.4. Developing Staff Understanding of, and Engagement With, Impact

As articulated in our Mission and Vision in Section 1, there is a well-established tradition at NBS of research that translates into end-user applications across public, private and third sector organisations and the policy and regulatory world. This is overseen by Professor Peter Murphy, the NBS Impact Champion. As such, the identification and delivery of opportunities for impact on end-user practitioners and regulators are well understood and embedded in NBS practice. It features strongly in the NBS approach to recruitment, induction, mentoring, professional development, appraisal and promotion. NBS brings together researchers with work of high impact potential in regular, timetabled group meetings which offer a forum: for developing approaches to nurturing impact; building connections with research users; providing critical and developmental peer appraisal of impact strategies in research plans and proposals; and designing effective metrics to evidence impact. There is a strong tradition of external review, where NBS engages with its many contacts in the business and policymaking environment and members of its Research and Impact Advisory Board to offer a practitioner view of impact claims and how they are articulated.

2.1.5. Development and Progression beyond the Early Years

NBS deploys a range of measures to support and develop existing researchers and to attract new research talent. It committed to recognising both the common and the distinctive needs of different groups of staff in designing and implementing our people strategy.

Firstly, researchers are generally attracted and aligned to one or more Research Centres and are invited to participate in its activities, such as projects, seminars, workshops, outputs and are supported through mentoring by senior colleagues. Beyond the formal mentoring system, there is a strong culture of informal coaching and support within NBS, particularly within Research Centres. Colleagues share work in progress in a supportive environment via regular meetings and are encouraged to articulate research needs. These include training in specific research

techniques, support in funding bid development, sessions on framing and targeting research papers and responding to referee and editor comments.

Secondly, researchers are also encouraged to work together to form the basis for growing research activity which in the future may form a self-sustaining Research Centre. The formation of thematic incubator research groupings is an established development practice for senior, mid-career and early career researchers that creates critical mass in emerging research areas in the School. Often under the leadership of new senior colleagues, these formations galvanise research aspiration where it was previously less evolved. This recognises NBS's aspiration to add to its range of Centres in the medium term. The three current thematic incubators are: Innovation, Digitisation, Entrepreneurship and Organization; Marketing and Consumer Studies; and Accounting and Finance.

2.1.6. Support for All

The NTU-wide advancement, promotion and appraisal system, including the biannual senior-level reviews of professorial performance, focuses on specific career pathways. Both promotion and appraisal are tailored to take account of equality and diversity characteristics. This enables targeted measurement and reward for the contribution of colleagues based on their areas of focus and expertise.

Another set of support structures aimed at all researchers flows from the significant investment by NTU and NBS in the range of initiatives noted in Section 1. These include the launch of the NBS Study Leave scheme. This complements the institutional provision and replaces an earlier ad hoc approach with a systematised model that offers researchers the opportunity of a period of up to six months to focus on research, free from teaching and related activities, in order to effect a step-change in their research trajectory. Ten per cent of colleagues in this return have already benefited from this provision, which also offers financial support for international visits to develop collaborative research. This has already generated tangible benefits, including high-level outputs for Ehret and Kougiannou.

Another initiative has seen enhancement of financial support for research, including an annual seed-corn fund of £35,000. Furthermore, the NBS Research Opportunity Fund provides a rapid response to emerging research needs and has awarded almost £40,000 to support a variety of projects in the last two years; this can provide short-term research assistants, specialist software, and participation in skills development courses. NBS has also increased its financial commitment to funding attendance and presentation at internationally reputable research conferences, with an annual commitment of around £80,000.

These examples of continued strengthening of NBS research support build on a long tradition of support initiatives, including the establishment of seminar series, resources for international dissemination activity, and financial support for staff seeking doctoral qualifications. Together they demonstrate an accelerating commitment to a comprehensive developmental environment where staff feel supported and can thrive as individuals and groups of scholars. The range of support mechanisms is under continual review by the Research Strategy Group; this affords both strategic oversight and the opportunity for 'bottom-up' suggestions to be developed and deployed.

2.2. Developing the Next Generation of Researchers: NBS Doctoral Programmes

NBS runs two doctoral programmes, the PhD and the DBA. Alongside these programmes, NBS also leads a €4 million Marie Skłodowska-Curie funded doctoral network of eight European universities focusing on low-energy communities. Section 4 below outlines details of this programme. The purpose of the PhD provision is to add to the body of knowledge by developing professional researchers who are on an academic career track. The DBA delivers rigorous research skills for managers via a practice and practitioner-led programme operating in business settings. As noted, there has been a 35% increase in the number of successful doctoral

completions in this cycle compared REF2014. PhD and DBA researchers in NBS, and those on the international doctoral training network, benefit from a rich synergy between the programmes, whereby students are able to participate in activities across the three doctoral variants, depending on their particular research areas and needs.

NBS Doctoral Completions (2013-14 to 2019-20)

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Totals
DBA	6	15	12	6	8	4	5	56
PhD	2	7	6	5	6	12	11	49
Total	8	22	18	11	14	16	16	105

2.2.1. The PhD Programme

Whilst the PhD programme has always occupied an important role in NBS's research environment, 2019 marked its significant strengthening with the introduction of comprehensive and bespoke doctoral training provision and an embedded range of international study opportunities which complements the generic research training provided by NTUs Doctoral School programme (see REF5a). This new approach offers the prospect of the School recruiting highly trained research-focused academic staff from its own PhD programmes. As such, the PhD and its enhanced training element provide the backbone to high-quality capacity building.

The bespoke aspects of the PhD programme draw largely on the expertise of NBS professors who deliver modules on advanced quantitative and qualitative analysis, research design and methodology. In addition, and in collaboration with partner universities and an international expert network (e.g. Complutense, Madrid), Fuzzy Set Qualitative Comparative Analysis provides a bridge between qualitative and quantitative research. Furthermore, electives provided by Research Centres draw on the thematic expertise of staff, for example on experimental research techniques, to meet the advanced research needs of PhD students working in these areas.

An exchange of up to six months with research partners in expert networks enhances the student experience and strengthens methodology skills and data collection capability via exposure to methods and techniques in operation at partner universities such as Copenhagen Business School, Complutense (Madrid), Kedge (Bordeaux, Marseilles, Paris) and fellow partners in the EIASM EDEN doctoral programme. The PhD programme has a current cohort of around ninety students and has delivered 49 graduates in the current REF period.

2.2.2 The DBA Programme

The NBS DBA has a long history of research connections to the world of practice, having run continuously as a Professional Doctorate programme since 1998. With a current cohort of around eighty and 56 graduates during the current REF period, it is aimed at practising managers with the overall goal of improving business and management practice through rigorous research by creating direct socio-economic impacts, in line with the NBS vision statement. The programme centres on a holistic approach to organisational and economic analysis that stresses diversity and complementarity of research designs and methodological approaches. The structure and training programme for the DBA programme was revised and strengthened in 2016.

The programme embeds the rigorous research approach within four modules, comprised of six workshops, which run across the programme and provide extensive training in a broad range of research methodology. Assessment is by a series of submitted documents, which cover overall research design, literature review and research methodology, culminating in a final doctoral

thesis. An innovation since 2016, allows a 'paper route' for the early submissions which creates a pathway through the DBA where students prepare and submit journal-style articles for assessment. Current DBA students and alumni serve as crucial stakeholders for relationships with a wide range of international businesses and organisations (e.g. European Investment Bank, CapGemini, and IPSOS). The cohort model is of particular importance for the programme, placing each intake of students into continuously maintained learning sets. Recruitment of some cohorts has formed part of strategic collaboration with the Chinese Academy of Sciences (CAS), and Motorola Inc in China. The current structure of the DBA facilitates the potential for dual or joint honours awards with partner institutions.

2.3. Ensuring Equality, Diversity and Inclusion

NBS is a vibrant place to work, enriched by the diversity of perspectives, cultures and backgrounds represented in its students, staff, visitors, and partners. Within Research Centres, it is recognised that diversity encourages more creative and innovative solutions to research questions.

NTU's commitment to equality, diversity and inclusion was acknowledged with the award of the bronze Athena Swan charter mark in April 2019 (see REF5a). NTU has also enrolled in Advance HE's Race Equality Charter. Supporting this, NBS aims at departmental Athena Swan submissions from 2022; application teams are currently conducting reviews, including cultural surveys on gender identification, promotion prospects and support, as a basis for developing an action plan for moving towards gender equality. NBS actively supports the Athena SWAN institutional KPI target to increase the percentage representation of women professors (which currently stands at 33% by FTE in NBS) to surpass the NTU professoriate target of reaching 35% by 2022.

NBS's Athena Swan and Race Equality Champions - both members of the School's Research Strategy Group - lead these efforts and address local level challenges in relation to gender equality and associated intersectionality for staff and students, as noted in Section 1.1. They coordinate School-level EDI activities including nominations to the Advance HE Aurora programme, events for International Women's Week, Black History month and LGBT History month. The EDI intranet links staff with institutional networks, policies and resources detailed in REF5a. So far, three members of NBS staff have been supported to take part in the Aurora programme and others have been identified for future cohorts.

NBS recruitment involves gender decoding of recruitment materials and mixed-gender interview panels. Staff training, including mandatory unconscious bias and trans-awareness workshops, improves knowledge and understanding of workplace equality and diversity. Across all academic and research staff in NBS, 48% identify as female. 56% of academic staff have extensive international experience or are non-UK nationals. The leadership gender profile for the six Research Centres is 50:50. 33% of staff identify as BAME, while 67% identify as white British, European or other.

As part of NTU's commitment to advancing gender equality, a funding scheme supports colleagues returning to academia following caring-related leave. The Support of Academic Returners (SOAR) provides financial support of up to £5,000 per instance of long-term caring leave to advance the practice, scholarship, or research of returning academic staff (see REF5a). In the specific context of research, the examples in 2.3.1. and 2.3.2. illustrate NBS's sensitivity to equality, diversity and inclusiveness.

Staff perception of EDI issues is very positive. Across NBS, the 2018 staff survey showed 95% agreement with *all* statements of equality of opportunity based on protected characteristics. 90% of responding staff agreed that the "University is committed to equality of opportunity for all of its staff".

2.3.1. Allocation of Research Hours

The process for allocating individuals' research hours is transparent and offers opportunities to all NBS academics by considering personal circumstances that may have compromised an individual's research development. Around ten percent of allocations reflect such considerations. The process adjusts expectations for part-time colleagues on a pro rata basis, thereby providing equity of access to research hours. If colleagues feel that they have received unfair treatment, they may appeal against their allocation.

2.3.2. Study Leave Programme

The award of study leave results from a successful individual application to the scheme that details plans for the effective and productive use of the leave. Whilst spending time at international institutions to develop research collaborations is encouraged, the scheme acknowledges explicitly that, for various reasons, some individuals are not in a position to spend time abroad, or that they will need additional support to facilitate this. In the evaluation of the applications, the scheme details state that all such circumstances are considered.

3. Income, infrastructure and facilities

3.1 Income

Alongside the investment in a renewed professional research infrastructure outlined in Section 1, the School has developed a strong collaborative relationship with the restructured University Research Support Services, which has benefited from £1.13 million annually of new University investment. This has led to a number of enhancements to the capacity, systems and processes supporting research income generation. These include a renewed emphasis on grant capture as a key element in the careers of research-active academic staff and the wider recognition of research income as a key indicator of the School's research identity and capability. These factors are central to the performance appraisal and promotion processes, as well as in the recruitment of academic staff.

In addition, there is an extensive programme of School-level events relating to aspects of grant capture, highlighting different funding sources and sharing the experience and insight of successful grant-winners and professional research administrators in the development of bids. These events include presentations and surgeries with ESRC, the Leverhulme Trust, the British Academy and Innovate UK. NBS has developed a system for the rapid dissemination of intelligence on funding calls, with matching of calls to individuals' academic specialisms and interests. In 2018, working with the University Research Support Services, NBS introduced a new protocol for bid development, which involves close collaborative working between School academics and Research Support staff from the inception of any funding idea through to submission. These developments have contributed to the accelerated growth of research income capture throughout the current REF cycle, as evidenced by the HESA data.

Overall, in this REF cycle NBS has been awarded approximately £3 million of research grant income, with spend of £1.6m compared to £877k in the last cycle. The NBS figures reflect its share of involvement in externally-funded projects to the value of c. £14 million in this REF period. Sources of funding are diverse, but there has been particularly strong recent success in securing EU Marie Skłodowska, GCRF, ESRC, AHRC and DfID awards. The commitment to increase the allocation of hours devoted to research and the introduction of a Study Leave Scheme each contribute to generating high-quality research funding applications and increased grant capture.

3.2. Current Funded Research Projects

Three examples of current funded research projects led by NBS that exemplify our commitment to multi-layered, cross- and intra-University collaboration are presented below. Two further examples appear in Section 4, highlighting multilateral international collaborations with both academic and practitioner partners.

3.2.1. International anti-corruption laws and local social norms: interactions and implications for policy (DfID funded – c £350,000, 2019-2021)

The international community has invested considerable resources in building an international anti-corruption legal architecture, to which many governments and international agencies have subscribed. These include the OECD Anti-Bribery Convention, the UN Convention on Transnational Organized Crime (including money laundering), as well as the UN Convention Against Corruption. However, countries vary considerably in the implementation of their commitments and the resources devoted to enforcing anti-corruption laws.

This project seeks to quantify the influence of norms and beliefs about the behaviour of others on the willingness of individuals to offer or receive bribes. The research method centres on incentivised experiments designed by a multidisciplinary team including experts in economics and political science and advisory board members from business and law enforcement agencies. These are conducted transnationally (UK, USA, Germany, China, Nigeria, Uganda, Ethiopia, Bangladesh, Kenya, Tanzania, Kenya), to capture essential aspects of the international business context in which many forms of corruption occur.

The findings of this research will inform policymakers and transnational institutions in the design of more effective international anti-corruption policies, and organisations in best leveraging anti-corruption laws to build organisational cultures of integrity. The research, led by Professor Thorsten Chmura, comprises academics from the Universities of Nottingham and Sussex, City University (London) and Bard College, Berlin.

3.2.2. Digital Innovation for the Development of Africa (UKRI – GCRF funded – £142,000, 2020-2021)

In June 2020 the Responsible and Sustainable Business (RSB) lab embarked on a UKRI GCRF DIDA (Digital Access for the Development of Africa) funded project entitled, WE-DARE: Women's Equality: Digital Access and the Rights to Expression. The main goal of the research is to explore how access to digital platforms and innovation can protect and further enhance women's basic rights in Africa. The focus is on addressing the problem of violence against women and a lack of access to digital citizenship in South Africa, and potentially in a broader African context. Since this is a network-building grant, the methodology centres on focus groups, stakeholder dialogues, and roundtables. In light of COVID-19, much of this happens online. The five international academic partners are GIBS Business School, University of Pretoria, University of Cape Town, University of Stellenbosch, and Lagos Business School. Civil society partners include Business Leadership South Africa (BLSA); Sonke Gender Justice; Triple Black Agency, Open Up; Women's Trust; Womaniko; and Warif. Technology partners are Praekelt, Saya Setona, Wiconnect and The Affect Lab.

3.2.3. COVID-19 and Voluntary Community and Social Enterprise Organisations' Response (ESRC - £430,000, 2020-2021)

COVID-19 has had a dramatic impact on the voluntary sector, with an estimated £4.3bn loss of income between March-June 2020 alone, at a time when demand for services, particularly around mental health and social isolation, is rising. The design of this research project aims to provide real-time data and insights to help policy-makers and practitioners respond to the unfolding nature of the crisis. This involves a monthly Impact Barometer to provide snapshot insights into the impact of COVID-19 on the sector, quarterly panel data from 200 organisations to gauge the impact on different types of organisations, and twenty in-depth interviews a month to assess organisational impact. The research will focus on human resource issues, for both employees and volunteers, and how different phases of the crisis affect each group. All of the analysis generated by the project and the assembled data will be openly accessible. The NTU research team, led by Professor Daniel King, is collaborating with NCVO (the national body for the voluntary sector) and Professor Tracey Coule at Sheffield Hallam University. Project partners include the CIPD and key infrastructure organisations within the sector. The aim of the research is to inform policy and practice in relation to voluntary organisations.

3.3. Physical Infrastructure Supporting Research

In terms of physical infrastructure, all NBS academic and administrative staff are located in the iconic Newton-Arkwright Complex in central Nottingham following a £92 million remodelling in 2010. Apart from offering high-quality office accommodation on Floors 6 to 9, the Newton Building offers a wide range of teaching, meeting and breakout rooms, dedicated conference facilities that enable hosting of a range of events, a dedicated Bloomberg suite, and a new, 30-workspace behavioural science laboratory to conduct experimental economics research and related work as well as dedicated Link Lounge for NBS students, employability suite and multitude of flexible social spaces. Within the Newton-Arkwright Complex staff have access, under the same roof, to a range of study, social and catering options that create a positive environment for collaboration and team building.

The central location of NBS and its facilities are a significant asset in the development of impact opportunities arising from research. As well as hosting international conferences and workshops for academic, practitioner and policymaking communities, the facilities offer a range of regular events such as the NBS Business Leaders Lecture Series delivered by 2-3 national and international business leaders every term which afford an excellent opportunity for networking and exploration of collaborative opportunities beyond the immediate academic community. The Inaugural Lecture series of talks by new professors offers similar opportunities. These events, which on average occur every month, take place after 17.30 to allow attendance from a wide cross-section of the community. Close working relationships between NBS and units of NTU which foster local partnerships, entrepreneurship and business incubation, strengthen connections between NBS, business and other organisations in the city.

Doctoral students enjoy dedicated space within the Newton Building as well as in a newly dedicated doctoral facility in Goldsmith Street, 30 metres from the Newton Building; this offers workstations, social and breakout space. The physical library is only a three-minute walk from the Newton Building yet is most accessed through a full on-line service for at-desk access to journals, databases and related research resources. An NBS-dedicated member of library staff, who sits on the NBS Research Strategy Group, works closely with the School in planning and delivering provision of physical materials and on-line services. On-site IT staff ensure a high-level of digital provision and support for all academic activities, including research.

University research support services and the Doctoral School are also co-located with NBS in the city centre. This facilitates easy face-to-face contact with staff in each unit, which is beneficial in the efficient development and submission of research funding bids and liaising on issues relating to doctoral student progression, studentships, research training and related matters.

Collaboration with other schools, most notably with Social Sciences and Law, benefits from the close proximity of these units on the City Campus.

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

4.1 Collaboration and Contribution: Strategic Priorities

Centrally important elements in NBS's research strategy are active collaboration with scholarly communities and institutions at an international level and meaningful engagement with organisations and networks in the wider community, particularly those that help to shape its research agenda or benefit from its research findings. These serve to underpin the reputation and credibility of NBS as a leading research school and emphasise its focus on research that materially and positively influences the wider economy and society.

NBS attaches great importance to collaborative partnerships, membership of and contribution to international networks and this is reflected in purposeful engagement with business, policymaking, public and third sector communities. The international dimension benefits from close collaboration between NBS and NTU Global, which is important in exploring and developing international strategic partnerships, such as the current initiative with Kedge Business School. The importance of these areas of activity is stressed in the induction of

colleagues, in mentoring, career development and appraisal, and in investment in the development of collaborative ventures and networks. Colleagues are encouraged and supported to develop their international academic profiles and connections by presenting at and hosting internationally reputable conferences, accepting editorial positions and holding office in learned societies and international representative and accreditation bodies. NBS's membership of, and active participation in, key national and international organisations complement and reinforce these individual activities. Through its Research Strategy Group and Impact Champion, NBS also encourages its researchers to establish strong links beyond the academic sphere through participation in government and industry committees, advisory boards and panels and via the development of activities that translate academic research into societal benefit.

This is reinforced by the NBS Research and Impact Advisory Board which brings a twice-yearly opportunity for formal dialogue around collaboration with a range of business professionals, ensuring a strong connection with contemporary business agendas that might inform research. The Business Leaders' lecture series and the NTU Distinguished Lecture programme offer further direct engagement with the business community. Further opportunities for deep engagement with end-users develop from the School's executive education operation and its DBA programme. Each of these areas has led to collaborative research with client companies and DBA employers. The NBS Alumni Fellows network, a community of almost three hundred, sustains a link between NBS graduates and the School, leading to opportunities for consultancy and research collaboration.

The following sections describe and provide examples, respectively, of:

- NBS, Research Centre and individual contributions to the business school sector, both nationally and internationally.
- academic collaboration across a wide range of distinguished institutions.
- collaboration with non-academic and end-user organisations.

4.2. Contributions to the Sector

4.2.1. Sector Capacity and Development

NBS is a substantial contributor to the sustainability of the discipline of Business and Management, and regularly hosts national and international conferences, workshops and seminars, inviting participation from throughout and beyond the UK. Recent examples include:

- European Business Ethics Network (EBEN) Conference in 2016.
- UN-PRME Conference in 2016.
- CIPD's Applied Research Conference in 2018.
- Universities' Forum for Human Resource Development Conference in 2019.
- With BAM, a joint one-day workshop on interdisciplinary research and a workshop on Managing and Leading People in Organisations, 2019.
- Chartered ABS Annual Research Conference scheduled for March 2020, before deferral due to the COVID-19 pandemic.
- 19th ABIS Colloquium in 2020 which was ultimately hosted as a virtual event due to COVID-19 pandemic.

NBS academics regularly contribute to research-leadership development programmes. Senior researchers in NBS have delivered several sessions to the Chartered ABS/BAM Development Programme for Directors of Research and the EFMD/EuRAM Research Leadership Programme. NBS's membership of EIASM affords members of its doctoral community preferential access to its extensive international doctoral seminar series.

4.2.2. Engagement with Key Sector Organisations and Networks

NBS is committed to active membership of and participation in the work of key organisations in the international business school environment. Its membership of, and accreditation by, AACSB and EFMD, exemplifies this. NBS is also one of eight UK business schools on the EIASM academic council and is a member of the Chartered ABS. Members of the NBS executive play leading roles in the work of these bodies. NBS's Dean is on the Executive Board of EFMD and is a Council member and Treasurer of CABS, and chairs the Board of Trustees for the Academy of Business in Society (ABIS). The Associate Dean for Research chaired the Chartered ABS Research Committee (2016-20). The NBS Head of Quality and Accreditations is also co-chair of the UK and Ireland Accreditation Group. NBS is one of only three UK business schools to hold UN PRME Champion status. Professor Helen Shipton is a member of the council of the British Academy of Management.

4.2.3. Individual Esteem and Community Contributions

At the individual level, NBS researchers are encouraged to engage across the academic community via a range of activities, including conference keynote addresses, positions in learned societies, and editorial roles with academic journals, visiting positions at leading institutions, external examining and membership of accreditation panels. Examples include Professor Alan Collins is President of the Association of Cultural Economics International; Professor Ursula Ott is member of the Research Methods Board and a Vice-President of the Academy of International Business; Professor Daniel Hjorth edits Organisation Studies; Professor Ian Clark edited Work, Employment and Society until 2019 and Professor Mollie Painter remains as editor for the Business and Professional Ethics Journal and will take up the Editor in Chief position of Business Ethics Quarterly in 2021. NBS researchers currently hold fifteen journal Editor-in-Chief/Editor/Co-Editor roles, with in excess of sixty editorial board positions, including with the Academy of Management Review, Entrepreneurship and Regional Development, the International Journal of Production Management, the International Small Business Journal, Journal of Business Research, International Business Review, Economic Issues and the International Journal of Human Resource Management. The Dean, Deputy Dean and Associate Dean for Research are peer reviewers for EQUIS and other review and accreditation panels. Recognition of achievements by NBS researchers are reflected in various international awards and prizes, such as Professor Ursula Ott's award for the Best Methodology Paper at the Association of International Business annual conference in 2019 and the award to the Dean of Fellowship of Chartered Association of Business Schools in 2019.

4.3. Academic Research Partnerships and Collaborations

4.3.1. Motivation and Range of Benefits

NBS has over one hundred international partnerships with leading business schools, as well as numerous collaborative arrangements with UK institutions. Many of these involve research, motivated by common interests or research synergies between teams, opportunities to work jointly on research projects or facilitating access to international funding sources, as well as facilitating doctoral and academic exchange. Of the 449 academic articles published by NBS staff in the current REF period, almost two-thirds involved joint work with colleagues from other institutions. Examples of significant joint authorships in leading international journals include those by Painter (with Deslandes, ESC Paris), Chapple (Moon, Copenhagen Business School) and Shipton (Sanders, University of New South Wales).

Beyond these specific areas of benefit, there is significant and broader reputational capital associated with a School that is demonstrably international in outlook. This is important, for example, in the attraction of high-level doctoral candidates and in the international labour market for academic staff and in securing major international accreditations such as AACSB and EQUIS.

4.3.2. Centres and International Collaborations

Via its Research Centres NBS has an extensive international network. Examples include:

- CPWOP's links with Monash University, University of New South Wales and the University of Sydney, Dublin City University and Twente University. The Australian partners are actively involved in research comparing attitudes to 'good work' in different international contexts, supported by strong connections to professional bodies.
- CEPPM's active international research partners include the Universities of Freiburg, Queensland, Sichuan, Shanghai Jiao Tong, Athens and Utah, where collaboration focuses on a range of issues, including approaches to energy conservation and comparative delivery models for public services.
- The RSB Lab has strong collaborations with Copenhagen Business School, Europe's leading centre for research in business ethics and social responsibility, ESC Paris, Rotterdam Business School, Radboud University Nijmegen, Stellenbosch University, University of Pretoria, Nanyang Technological University (Singapore) and WU Vienna. Details of the African research collaboration appear in Section 3.
- Centre for Behavioural Science Research has a global network of partnerships, including with TU Munich, Montpellier, Dusseldorf, Cologne, Ghana, Makerere, Southern Methodist, Michigan and Shanghai Jiao Tong. This network supports laboratory-based research examining international differences in behaviours in areas such as corruption, trust and co-operation, and the effectiveness of behaviour-modifying interventions.

A further dimension of international collaboration is the established long-term appointments of eminent professors from leading international schools to fractional positions with NBS. Currently, NBS has a cohort of five such colleagues, (four of whom have been with us continually over successive REF periods): Marius van Dijke (Erasmus University, Rotterdam), Robin Holt and Daniel Hjorth (Copenhagen Business School), Marina Dabic (University of Zagreb) and Sander de Leeuw (Wageningen University). Each has a close association with one or more Centres and contributes richly and in a variety of ways to the NBS research environment, whether through mentoring and coaching, development work with early career colleagues, offering technical or paper development workshops, joint authorship and participation in research funding bids. These colleagues typically spend between twenty and forty percent of their time working with colleagues at NBS, bringing an enriching international insight and experience to the NBS community.

4.4. Research Collaboration and Engagement with End Users

NBS has a rich tradition of collaboration with end-users of our research, which includes long-standing relationships with the CBI, the Institute of Directors, the Chartered Institute of Public Finance Accountant (CIPFA), the Chartered Management Institute (CMI), the CIPD and the Chartered Institute of Marketing (CIM).

NBS has strong research ties with the corporate world, notably with international companies such as Walgreen Boots, Experian, Rolls Royce and Refinitiv while nationally there are also strong links with a range of public and third sector organisations, such as the National Audit Office, the NHS, the Fire Services, Business in the Community and other national bodies. Regionally and locally NBS works closely with Midlands Engine, D2N2 Local Enterprise Partnership, Nottingham City Council and Nottinghamshire County Council, to support the development of regional economic planning, including hosting the Midlands Observatory in conjunction with the University of Birmingham. The strong contribution of NBS research to the local economy is exemplified by Oxborrow's work, building capacity, capability and resilience in local SMEs via, for example, the Big House project, as featured in an impact case study associated with this submission.

Stemming from this work, NBS research has informed the design of successful interventions to support the sector in terms of promoting innovation and enhancing competitiveness. NBS has engaged in five Knowledge Transfer partnerships (KTPs) in recent years, with Amberol Ltd, Freshcut Foods Ltd, Link Associates, Meadowmead Ltd and Nottingham City Homes representing recent examples of this form of collaboration.

As already noted the Research Centres lead many individual collaborative projects with end-users, some further examples include:

- CPWOP's work with Walgreen Boots and with extensive networks of public and private sector organisations (e.g. Nottingham Healthcare NHS Trust, Pattonair, McDonalds) on the Employee Voice projects and as noted in Section 3.2.3 Professor Daniel King works closely with voluntary organisations and the sector's representative body, the National Council for Voluntary Organisations (NCVO).
- CEPPM's well-established expertise in the configuration, management and delivery of emergency services and healthcare has generated numerous commissioned research projects that have materially influenced policy and practice some of which are detailed in our impact case studies. Professor Peter Murphy is a member of various advisory and supervisory bodies in the areas of local government, emergency services and healthcare.
- The RSB Lab's involvement on an ongoing basis in conducting research on values-based management with commercial organisations in several African countries CBS's major DfID-funded international research project, under the Global Integrity Anti-Corruption Evidence programme.
- CWIP works closely with the Director for Labour Market Enforcement (DLME) at the Department of Business, Energy and Industrial Strategy, the Home Office agency, the Gangmasters' and Labour Abuse Authority (GLAA) the Bingham Centre for the Rule of Law's Modern Slavery and Human Rights Policy and Evidence Centre. CWIP research outputs which provide expert evidence to government on the design and framing of DLME annual strategy forms one of the impact case study.

Almost two-thirds of the well over 300 practice-orientated articles published in this REF cycle involved cross-institutional collaboration, whilst thirty-two of the sixty-nine reports commissioned by companies, industry bodies or government were collaborative. Presentations at practice and practitioner focused conferences accounted for twenty percent of the 600 presentations made by NBS researchers during the last five years.

4.5. Multi-layered International Research and Business Collaborations

The two research projects highlighted below are examples of Centre-led collaborations which involve both academic and business organisations working together on an international basis.

The **REAMIT – minimising food waste** project, part of CIBSD's portfolio, offers an excellent example of an international collaboration between academic and commercial institutions with material and significant impact through purposeful translation of research into practical applications.

- This EU funded project (total value £4.4 million) brings together six academic institutions (Universities of Bedfordshire, Nantes and Ulster, NTU, the National University of Ireland and the Institute of Technology, Tralee) and five commercial organisations across five countries.
- The research investigates the possibilities of harnessing Internet of Things (IoT) technology and big data analysis to develop decision support systems which identify 'at risk' food in the supply chain and divert potential food waste to alternative productive uses.
- The project will support twenty companies and aims to establish savings of €3 billion per year, making an important contribution to the EU's food waste issue, currently estimated to cost over €140 billion.

The **SmartBEEJS – international doctoral training network**, provides evidence of a second high profile international collaboration. This initiative, established in 2019 under the Marie Skłodowska-Curie Actions programme of the EU, has attracted funding of £3.8 million.

- The CEPPM-led network is a consortium of eight universities and sixteen commercial organisations, in the United Kingdom, Italy, Portugal, Austria, the Netherlands, Germany, Spain and Switzerland.
- A central aim is the training of a new generation of fifteen creative and entrepreneurial researchers with the ability to translate knowledge into new products and services that benefit both society and economy.
- This innovative doctoral training programme incorporates deep training in students' individual disciplines, engaging with the needs of citizens and communities, working with scientists and technologists in addressing the challenges associated with the establishment of positive energy districts (PEDs).

4.6. Summary: Collaboration and Contribution

Section 4 evidences the engagement, network-building and collaboration at School, Centre and individual levels which are at the heart of NBS's approach to delivering high-quality research with impact within and beyond the academic arena and on an international basis. These areas of activity bring material benefits including increased international co-authorships, research funding capture and impact case studies. The engagement and active participation of NBS in international organisations; its contribution to the business and management community through hosting of conferences, development workshops and capacity building activity; and the contribution of its senior academics to national and international representative bodies and learned societies, further evidences its commitment to collaboration and contribution.

This environment statement has charted the development of NBS's research identity and performance throughout the current REF period. It describes NBS's purposeful strategy, founded on critical self-analysis, strong aspiration, and sustained and targeted investment in high-quality academic staff, allied to a comprehensive research support system and a strong commitment to collaboration, international reach and high impact within and beyond the academic setting. The fruits of NBS's success are now evident across a range of metrics, which mark the School as one which has arrived as a powerful research force within the sector; a progressive, confident and ambitious community of scholars.