Institution: Loughborough University

Unit of Assessment: C19 Business and Management Studies

a. Overview

The School of Business and Economics (SBE) research portfolio covers Business and Management, Economics and Information Management. This document focuses on Business and Management Studies (the 'Unit'), but necessarily includes the interdisciplinary work of the School. Some staff from the Economics and Information Management groups are included in the Unit for the following reasons. Four existing members of SBE staff (Doherty, G. Fitzgerald, Coombs, Champion), whose work is in information systems, moved into the new Information Management Discipline Group following the merger of part of the former Department of Information Science with SBE in August 2013. Meanwhile, members of the Economics Discipline Group who work within the interdisciplinary Research Centres for Post-Crisis Finance and Firms in the Global Economy (Edwards, Ferrett, Garrod, Green, James, Mukherjee, Spencer and C. Wilson) are included in this submission because of their close linkage to the work in business and management.

The 60.5 FTE staff submitted in this Unit are organised across seven Discipline Groups: Accounting and Financial Management; Human Resource Management and Organisational Behaviour; International Business, Strategy and Innovation; Management Science and Operations Management; Marketing and Retailing; Economics; Information Management. These groups provide support to the individual researcher. The Head of Research for each Discipline Group is responsible for the allocation of research funding to individual staff (e.g. for attending conferences), for the annual review of research performance through Personal Research Plans and for the allocation of work to the Discipline Group's Research Officer; a novel role for supporting research, explained in section [c.i].

Clusters of research are organised around six Research Centres and a set of evolving Research Interest Groups (RIGs), which are described in section [b]. These groups represent areas of research strength that cut across the Discipline Groups. Research Centre Directors and RIG Leaders are responsible for developing and promoting the research of these clusters.

The SBE Research Committee is responsible for all matters concerning the quality, nature and promotion of research. It meets twice a term and it is chaired by the Associate Dean Research (ADR – Robinson). The committee reports to the SBE Management Group through the ADR. Meanwhile, the PhD Programme Committee is responsible for all matters concerning the quality, nature and promotion of the programme. The committee is also chaired by the ADR and reports to the SBE Research Committee. The PhD Programme Directors (Atuallah and Mukherjee) lead developments in the programme. The SBE Research Office is managed by the Research Administrator and reports to the ADR. The office provides research support to staff and administers the PhD programme.

The ADRs from all ten Schools in the University are members of the University's Research Committee which is chaired by the Pro Vice-Chancellor for Research.

b. Research strategy

At the last RAE the Unit's strategy was expressed through the following aim and objectives:
  '*To produce internationally excellent research across the range of our activities that contributes to theory, practice, policy or a combination of these. We have the following objectives:*
   1. *To develop a strong research-enabling environment;*
   2. *To allow staff the resources to pursue and develop their own research agendas;*
   3. *To disseminate our research through multiple paths, including academic outlets that are recognised as internationally excellent, and practitioner and policy outputs that have significant practical impact.*'
The results of the RAE2008 demonstrate that under this strategy the Unit had made significant progress in the development of its research (i.e. 60% of the Unit's research activity was judged to be world-leading or internationally excellent). This represented a major improvement on previous performance.

Since 2008 the Unit has continued to strengthen its research. A detailed review of the research strategy in 2011 led to a revised research goal: '*to produce research of world-leading standard recognised and valued by peer and non-academic communities across a range of disciplinary areas within business.*' This builds on the previous strategy by providing ambitious targets in relation to six objectives:

  i. *Identified Research Strengths*: To be recognised internationally as a leading centre of research excellence in specific major areas of business and management research.
 ii. *Outputs*: To increase the proportion of the Unit's research outputs rated as internationally excellent and world leading.
iii. *Funding*: To increase the level of research income derived from Research Councils, EU, charities, industry, and alumni.
 iv. *Impact*: To engage more closely with non-academic users around our research activities and seek to ensure that our research influences policy and practice.
  v. *PhD Programme*: To embed research students as an integral part of our research culture, enhancing the quality of our research, and helping create the next generation of business research scholars.
 vi. *Interdisciplinary*: To foster close collaboration between Economics, Information Management and Business, as well as with other Schools, to develop research areas of common interest.

The aim of the strategy is to move the Unit from being primarily internationally excellent, to one that is world leading across a significant portion of its research activity. This has led to a step change in our research environment. We would especially highlight:

- The development of research clusters through Research Centres and Research Interest Groups.
- The strengthening of the staff research base through recruitment and staff development.
- The growth of the PhD programme and increased quality of PhD work through staff led projects.

The Unit's strategy closely aligns with that of Loughborough University to produce 'research that matters': scholarly research that is driven by the highest levels of intellectual curiosity and achievement ('recognised and valued by the peer community') and that engages with and addresses current issues facing society, the economy and business organisations ('recognised and valued by the non-academic community'). The following activities and initiatives have been put in place to support the six objectives.

i. *Identified Research Strengths*

As identified by the RAE2008, there are many examples of world leading and internationally excellent research across the Unit. Since 2011, six Research Centres have been established to draw together staff working on a common, contemporary and relevant theme in order to develop and promote these key areas of research strength. The Centres have been established with SBE providing each with £30k in seed corn funding and two PhD studentships; representing a total investment in the Unit of around £800k. The Research Centre Directors are responsible for leading and developing the work of the Centres. The six Research Centres are as follows:

- *Centre for Professional Work and Society*. Researching the impact on careers of globalisation-led transformations in the workplace, from the international outsourcing of professional work through to the changing face of health and social care. Directors: Coupland and Hislop; Unit members: Ackers, Randall, Sage.
- *Centre for Post-Crisis Finance*. Conducts research on many of the key issues facing the financial services industry in the wake of the global financial crisis. It also serves as a platform for the wide range of work on financial markets and institutions carried out across the Unit. Directors: Milne and Freeman; Unit members: Green, Hall, James, Sirichand, Spencer.
- *Centre for Global Sourcing and Services*. Conducts research on the trends and practices in global sourcing of IT and business services to improve sourcing practices through on-going engagement with managers and policy makers. Directors: Oshri and Herbert; Unit members: Doherty, Mayasandra-Nagaraja, Seal, Zimmermann.
- *Centre for Information Management*. Conducts research that aims to transform the digital world by: improving performance through analysis, interpretation and judgement of information; challenging thinking and practice around information management; evidencing the significance and value of information. Directors: Jackson (outside the Unit) and Coombs; Unit members: Champion, Doherty, G. Fitzgerald.

- *Centre for Service Management.* Conducts multi- and inter-disciplinary research that matters to private, public and third sector service organisations; providing new knowledge to inform researchers and educate managers through the exploration of the theory and practice of service management. Directors: Gruber and Radnor; Unit members: Franco, Hodgkinson, Keeling, Rafiq, Yang.
- *Centre for Firms in the Global Economy.* Conducts research on firm strategy and government policy in a global economy, enabling policy makers to understand the impacts on (multinational) firms and informing managers' foreign market strategies. Directors: Mukherjee and Edwards; Unit members: Ferrett, Garrod, Gao, Oshri, Ott, C. Wilson.

Research Centres are subject to annual reviews by the SBE Research Committee at which attainment of Centre objectives are discussed and plans are reviewed. As an example of early success, the Centre for Post-Crisis Finance has secured £64k from the Alfred P. Sloan Foundation for establishing how the Global Legal Entity Identifier System and associated reference data can best be designed and implemented.

RIGs cluster staff and research students around emerging areas of research strength. Their aim is to give visibility to these clusters and in so doing to develop them. RIGs consist of at least four members and they are set-up following a proposal to the SBE Research Committee. They are subject to an annual review by the SBE Research Committee enabling them to evolve as the research interests of staff within the Unit adapt. As such, RIGs reflect the dynamic nature of the Unit's research environment and the willingness to adapt to new research themes that 'matter'. At the time of writing the following RIGs exist within the Unit:

- Logistics and Supply Chain (LSC-RIG)
- Simulation Practice (SP-RIG)
- Town Centres (TC-RIG)
- Corporate Governance (CG-RIG)
- Visual Decision Practices (VDP-RIG)

As an example of RIG achievements, members of the TC-RIG are leading an ESRC funded project (£100k), 'investigating the customer experience of the town centre', with project partners Argos, Association of Convenience Stores (ACS), Action for Market Towns (AMT), Boots UK, British Retail Consortium (BRC) and the Loughborough Portas Pilot (Love Loughborough partnership).

In order to help develop the international dimension of the Unit's research, seed corn funding for enhancing international collaborations is provided by SBE. For instance, in 2013 £10k was invested in three projects. As an example, £4k was given to members of the Centre for Global Sourcing and Services for a project on 'the Nature of Professional Work in the Sunset and Sunrise Economies' in collaboration with the Singapore Management University, City University of Hong Kong, Universiti Kebangsaan (Malaysia) and CIMA (Sri Lanka).

ii. *Outputs*

Since 2008 greater emphasis has been placed on staff submitting their work to appropriate leading business and management journals, and on support for achieving this. This, however, is not to the exclusion of other types of outlet e.g. specialist journals. It is recognised that this is challenging, especially for early career researchers, and so they receive specific help in developing their research (section [c.i]). The quality of individual outputs is also evaluated through peer review.

Support for publishing has been provided through workshops on writing led by experienced academics (e.g. Diamantopoulos in 2012) and through mentoring from senior staff. One role for each Discipline Group's Head of Research is to provide advice on writing and publishing high quality output. The annual Personal Research Plan process enables staff publications (accepted, submitted and planned) to be monitored and appropriate support and development to be provided.

The Unit employs five international Professors on part-time contracts: Diamantopoulos (Austria), Myers (New Zealand), Wieseke (Germany), Wilkinson (Australia), Wohar (USA). Part of their role is to provide advice and support to staff on developing their work into world leading research, including publishing. These Professors have jointly published with full-time staff in the Unit, for instance, Diamantopoulos-Cadogan; Myers-Mayasandra-Nagaraja; Wilkinson-Ackers; Wohar-Vivian. This collaboration occurs during regular extended visits to SBE and on a continuing basis via electronic communication.

As a result of these activities the proportion of outputs in what the Unit sees as leading journals

has steadily increased from 38% in the RAE2001 submission, to 55% in RAE2008 and now 84% in this submission.

iii. *Funding from External Sources* (Details of research funding are covered in section [d])
In order to further develop the level of external funding a new funding strategy was launched at the beginning of 2013. Our target is to submit £6m of bids per year to key funders. The strategy consists of a set of incentives, enablers and communications about successes. This includes work load allowances for managing research projects, training on applying for research funding and a mentoring scheme for those making funding bids; those with experience of making grant applications to a specific body are teamed-up with those making bids. The impact of this initiative is monitored by the SBE Research Office and ADR. Even at this early stage in the implementation of this strategy the value of bids in 2012-13 was more than double that of the previous year and at 80% of the target level.

iv. *Impact* (This objective is discussed further in the impact template, REF3a)
In line with our goal to perform research that is 'recognised and valued by... non-academic communities', generating impact (research that matters) is integral to our research strategy. We aim to achieve impact by ensuring staff place greater emphasis on generating impact from their research, seeking direct and indirect routes for generating impact, and monitoring and recording the reach and significance of the Unit's impact as well as reporting key successes. The Glendonbrook Centre for Enterprise Education is housed in SBE having been established with a £500k donation from Lord Glendonbrook in 2010. The Centre plays a key role in developing an impact culture within the Unit and the wider University. It achieves this through training and workshops for staff and postgraduate researchers, and through links with SMEs and larger businesses (e.g. Aggregate Industries, Excelerate Resources, Tech4i2, GLNoble Denton).

v. *PhD Programme* (Further information on research students is provided in section [c.ii])
In order to improve the quality and relevance of research student projects, and to elicit higher quality applications, from 2012 the Unit's PhD studentships have been allocated to staff on the basis of an internal competition. Members of staff propose PhD projects, the successful ones being advertised and students recruited. Proposals need to demonstrate a high level of scholarship and potential for publication. In line with our research strategy, preference is given to projects that demonstrate potential for impact, that have part funding from another source (e.g. business) and for proposals from early career researchers. This has proved successful with the 15 studentship awards in 2012 and 2013 attracting strong applicants (13 of the students recruited have Masters qualifications). The University's Graduate School is following a similar approach from 2013, with the Unit receiving four further studentships through this route.

In terms of creating the next generation of scholars, we have identified 30 students who completed their PhD during the REF period and who are now working as lecturing staff at HEIs in the UK or overseas. Examples include: Andrew Farrell (2008 – Aston), Ye Bai (2008 – Nottingham), Sigrun Wagner (2009 - Royal Holloway), Raj Prasanna (2010 – Massey, New Zealand), Lan Gao (2011 - Loughborough), Clive Trusson (2013 – Lincoln) and Ekaterina Nemkova (2013 - Nottingham).

vi. *Interdisciplinary Research within the University*
The Business School and Department of Economics were brought together as one School in 2011. Part of the former Department of Information Science joined SBE to form the Information Management Discipline Group in August 2013. The aim of drawing these departments together is to integrate the research of the constituent parts to gain the maximum benefit from interdisciplinary working. The SBE Research Committee facilitates this integration through a balanced representation from across the whole School. Success with respect to developing interdisciplinary work is evidenced through three of the Research Centres that involve staff from more than one of the original departments: the Centre for Post-Crisis Finance, the Centre for Information Management and the Centre for Firms in the Global Economy.

The Unit continuously seeks opportunities for interdisciplinary research with other Schools in the University. The ADR is regularly in contact with his counterparts seeking to identify opportunities for joint research. This is achieved through the University's Research Committee and on-going discussions with the other Schools. In 2013 the Pro Vice-Chancellor Research led the development of six key Research Challenges for the University: Energy; Health and Wellbeing;

Communication, Culture and Citizenship; Secure and Resilient Societies; Changing Environments and Infrastructure; Enabling Future Technologies. The Unit is identified as making significant contributions across these challenges, opening further opportunities for interdisciplinary work. Some examples of inter-School research are given in the box below.

Examples of inter-School research:

The Institute of Occupational Safety and Health (Cheyne, 2011-2014) with Civil and Building Engineering, School of Social, Political and Geographical Sciences, and the Design School.
A £1m EPSRC project (EP/J011525/1) on unmanned vehicles (B. Li, 2012-2016) with Aeronautical and Automotive Engineering, Civil and Building Engineering, and Computer Science.
An EPSRC funded project (EP/E018521/1 – £194k) investigating ways of undertaking interdisciplinary research between staff from mathematical sciences, information and communication technology, engineering and business (Champion was Co-Investigator).

Monitoring the Research Strategy and Individual Research Performance

The research strategy and progress against the strategic objectives is under constant review from the ADR and Dean, and all strategic initiatives are taken through the SBE Research Committee. Apart from receiving regular updates on progress with research, the SBE Management Group dedicates a meeting each year to reviewing progress on the research strategy and revising details in the objectives and planned activities where necessary. This ensures that the strategy responds to changing circumstances. The SBE Strategic Advisory Board, members of which are leading figures in the business and policy communities, helps drive the development of the Unit's research around the needs of industry. Research is a standing item on the Board's agenda, nominated Board members directly advise the Research Centres, and a sub-group of the Board (Gower – IBM, Howard – BDO International) meet with staff three times a year to discuss how the members of the Board can engage with and help develop their research.

Improvement of research performance is a key priority, and all academic staff complete an annual Personal Research Plan (PRP) which facilitates discussions on areas for development for individuals within the Unit. PRPs detail information on research outputs (published, submitted and planned), research funding applications (funded, submitted and planned) and progress of research students under the supervision of the member of staff. The plans are reviewed between the Heads of Research and the member of staff. This is followed by discussions on individual progress between the ADR and each Head of Research. Where required, the ADR and Dean meet with an individual member of staff to discuss their research performance. On-going support for specific actions that are identified through this process is provided to the member of staff by the Head of Research or a nominated member of the Discipline Group.

The information from the PRPs is reported to the University's Research Performance Monitoring Committee, chaired by the Pro-Vice Chancellor for Research. This committee is attended annually by the ADR and Dean to discuss the Unit's research performance. Actions identified by the committee are followed-up by the ADR and Dean, including discussions with individual staff and the provision of additional support where required.

Research is emphasised in the key decision-making forums of the Unit. The ADR is a member of the SBE Management Group, the Strategic Advisory Board, the Human Resources Strategy Committee, the Marketing and Enterprise Committee, the Internationalisation Committee and the Work Load Model Sub-Group. The ADR is also involved in short listing for recruitment of academic staff, and interviews for internal staff promotion.

c. People, including:

i. Staffing Strategy and Staff Development

The Unit's staffing policy is explicitly shaped by SBE's research strategy. Senior staff (e.g. Oshri, Coupland, Milne, Radnor, Gruber, Mukherjee) were recruited to establish and lead Research Centres, building upon existing research in the Unit. Members of staff have also been promoted based upon their contributions to Research Centres (e.g. Zimmerman, Mayasandra-Nagaraja). Members of staff have been recruited to develop streams of research funding (e.g. Milne, Radnor) and the quality of publications is a key factor in recruitment and promotion decisions.

The number of category A staff that have been returned for this Unit has nearly doubled since 2001 with 33.3 FTE in RAE 2001, 57.4 FTE in RAE2008 and for this return 60.5 FTE. Recruitment of staff focuses on a balanced portfolio including research profile, contribution to their discipline, teaching and potential contribution to SBE. All new members of staff are required to be active researchers with a relevant PhD (or evidence of near completion), publication profiles that correspond with their grade, appropriate experience of applying for funding and managing research projects, and with clear plans for developing their research into the future. In line with our goal to perform research that matters, recruitment emphasises research that has an applied focus. In line with Loughborough University's commitment to achieving equality for all, it is a mandatory requirement that those involved in recruitment decisions attend the recruitment and selection training which embeds the University's equality and diversity policy.

Across the Unit, 43% of staff are Professors, 23% are Senior Lecturers/Readers and 34% are Lecturers. Staff recruitment over the period has aimed to strengthen the research profile across the Discipline Groups within the Unit. Key Professorial appointments since 2008 are:
- *Accounting and Financial Management*: Freeman, Milne, O'Sullivan, Seal, Wohar
- *Human Resource Management and Organisational Behaviour*: Coupland, Wilkinson
- *International Business, Strategy and Innovation*: Myers, Oshri
- *Management Science and Operations Management*: Franco, Radnor, Robinson
- *Marketing and Retailing*: Diamantopoulos, Gruber, Wieseke
- *Economics (within the Unit)*: Mukherjee
- *Information Management (within the Unit)*: G. Fitzgerald

Cheyne, Chizema, B. Li and X. Liu have all been promoted to Professor since 2008. This has led to a growth in Professorial staff in Accounting and Financial Management; International Business, Strategy and Innovation; Management Science and Operations Management; and Marketing and Retailing. As a result there has been a clear strengthening of the research and research leadership in these areas. It is notable that members of staff who have previously left the University, have recently returned to the Unit (e.g. Professors O'Sullivan, Seal and in late 2013, Arnold) because of the attractiveness of our research culture and the career development opportunities afforded within the Unit.

Nearly 20% of the staff are from outside of the European Union. Meanwhile many staff have experience of working overseas or have undertaken periods of study leave in Europe, Asia, Australasia and the USA (see box below). Atzeni received an International Outgoing Fellowship (£202k Marie Curie grant) for a two year secondment in Argentina with CEIL (Centro de Estudios e Investigaciones Laborales CONICET). The fellowship, which began in June 2012, involves research into better regulation of employee conditions in the Argentinean informal economy.

Examples of work and study leave outside the UK:

Europe: Rotterdam School of Management (Oshri), University of Vienna (Ott), IE Business School Madrid (Franco) and University of Bamberg (Gruber).

Asia: Beijing Institute of Technology (B. Li), Hong Kong University of Science and Technology (J. Liu), National University of Singapore (O'Sullivan), Indian Institute of Management, Calcutta (Ackers), Hitotsubashi University, Tokyo (Spencer).

Australasia: Griffith University (Cheyne, Ackers), University of Melbourne (Coupland), University of South Australia (Stocchi), University of Canterbury (Seal, Robinson), Victoria University in Wellington (Souchon, Cadogan).

USA: George Washington University (Sage), University of California (Freeman), Georgia State University, Atlanta (G. Fitzgerald), Yale University (Green)

Early Career Researchers (ECRs) receive specific support in developing their research. Teaching loads are reduced for all new lecturing staff during their three year probationary period (1/3 in year 1, 1/2 in year 2 and 2/3 in final year); this provides up to 600 additional hours per year to establish their research. ECRs are allocated a Probationary Advisor (a professor) who meets with them regularly and advises them on all matters concerning their progress. In addition to the standard monitoring and support given to staff (e.g. Personal Research Plans), Probationary Advisors meet quarterly with probationary staff and perform a formal review annually. This gives an opportunity to specifically discuss progress on research and to advise on how to develop research further. The

annual reviews are reported through the Dean, ADR and Director of Staff Development to the University's Academic Probation Monitoring Group, which provides feedback for continuation of the probationary period. It is expected that probationary staff will aim to submit papers to high quality journals, be involved in doctoral supervision and submit research proposals to external bodies that involve some element of funding for performing research. All probationary staff follow the New Lecturers Course which involves a number of research workshops. Further to this, they are encouraged to attend Loughborough University training courses on a wide variety of research topics, such as: data collection and analysis methods, attracting research funding, and successful research supervision. Probationary staff also receive preferential treatment in the allocation of the Unit's funded PhD studentships. Because junior staff cannot supervise research students on their own, senior staff are encouraged to jointly supervise with probationary staff. Recent examples of joint supervision with ECR staff are Gao-X.Liu, Sage-O'Reilly (not in the Unit), Sirichand-Green, Stocchi-Gruber, Tako-Robinson and A.Wilson-Mayasandra-Nagaraja.

The Unit's submission involves ten ECRs: Gao, Garrod, Hartley, Oliveira, Sage, Sirichand, Stocchi, Tako, A. Wilson, Xia. An indicator of our success in developing ECRs is the number who continue to work in the Unit following probation. Edwards, Ferrett, Hodgkinson, Spencer, Tako, Vivian, C. Wilson, Yang and Zimmerman, have all completed probation during the REF period.

Apart from lecturing staff, the Unit employs five Discipline Group Research Officers. This role provides a further opportunity to develop ECRs. In a similar role to a research assistant, these staff are directly supported from SBE funds and managed by the Head of Research for their Discipline Group. Typically they have recently completed a PhD or are near to completing a PhD. They support staff in performing research which gives them the opportunity to learn more about performing research and to work with experienced staff. Research Officers are also given time, typically 20%, to work on their own research. This role has provided a platform for developing academic careers as evidenced by the examples of Research Officers since 2008 who have gone on to lecturing posts: Andrew Farrell (Aston University), Nathaniel Boso (Leeds University), Leonidas Anastasakis (Aston University), Qian Guo (Birkbeck), Irina Neaga (Plymouth University) and Ruth Hartley (Loughborough University).

All academic staff in the Unit receive an allowance of at least 33% of their annual workload of 1628 hours for research. In addition, work load time is also allocated for research student supervision (80 hours per student) and managing research grants (100 hours per research assistant supervised). Study leave is provided on the basis of one semester for every three years of teaching completed. Leave is granted following an application to the SBE Human Resources Strategy Committee. The committee also reviews the end of study leave report and, based on performance, it makes recommendations concerning future applications for study leave.

The annual Personal Research Plans form an integral part of our approach to monitoring and supporting research. All members of staff complete these plans which are discussed in section [b]. Meanwhile, research performance is a key element of the University promotion criteria. For instance, for successful completion of their three year probation a member of staff must have: published at least three academic journal articles of a suitable quality; made at least one significant research funding application; participated in the supervision of at least one doctoral student. The research criteria for promotion of staff in the Unit to Senior Lecturer are: a publications profile that indicates an established or developing international reputation; experience of contributing to funding applications that have led to the attainment of at least one significant research grant; supervisory experience that has led to at least one successful PhD completion.

Excellence in research is recognised through the Dean's Awards for Researcher of the Year (2013 – Cadogan) and ECR of the Year (2013 – Tako). These recognise outstanding publications and funding records, excellence in research leadership, outstanding international profile and innovative engagement with practice.

Further opportunities for developing research knowledge and skills are provided through staff training and seminars. Recent examples of training provided by SBE are: quantitative research methods (2012), publishing in world leading journals (2012) and a workshop on applying for research funding (2013). The University also provides training for research on, for instance, improving your research impact through open access, winning grants and embedding ethical

thinking. Frequent seminars are organised by Research Centres, RIGs and Discipline Groups. The SBE seminar series provides input on more general research themes (e.g. improving citations and generating impact). There are also numerous seminars and opportunities for training in research and leadership provided by the University.

Loughborough University undertook a comprehensive analysis of its alignment with the Concordat to support the Career Development of Researchers in 2009/10, and published an implementation plan in 2010, for which the European Commission's HR Excellence in Research Award was received. The plan was up-dated in 2012, as part of an internal review for the HR excellence award. Specific outcomes from the plan include a continuing commitment to a University-wide research staff mentoring scheme, a revised Code of Practice for the Employment of Researchers, and establishment of the Loughborough University Research Staff Association.

In line with the University, the Unit is wholly committed to achieving equality for all of its staff. In particular, the University's 'Equality and Diversity' policy is taken into account when making all decisions relating to staff promotion and rewards, as well as the allocation of internal research funding, research time and research support.

The University has an Ethics Committee which advises on ethical matters arising in the conduct of the University's business. It devolves ethical approval to the Ethics Approvals (Human Participants) Sub-Committee which ensures that any work that involves human participants is conducted to required ethical standards. This ensures that the research carried out in the Unit is of high quality and ethically responsible. The University also has a Research Misconduct and Whistle-Blowing Policy and Procedure which allows staff in the Unit to feel comfortable in reporting issues of research misconduct without fear of recrimination, ensuring a culture where research integrity is maintained.

ii. Research Students

Since 2008 extensive efforts have been made to expand the size of the doctoral programme, as shown by the total FTE:

Year	Total FTE
RAE 2001	33.25
RAE 2008	53.63
REF 2014	103

This expansion has been accompanied by increased funding from SBE. The Unit's funding for PhD studentships (fees, maintenance and conferences) since 2008 has been £4m.

The SBE PhD Programme Committee, which includes student representation, meets once a term to discuss programme developments. The PhD Programme Directors, supported by the SBE Research Office, lead the developments and report to the ADR. Meanwhile, the Unit works alongside the University Graduate School and other University services to enhance the postgraduate experience, and to support and encourage a vibrant graduate community. Key activities that support these aims are as follows.

The recruitment of research students in the Unit requires that they have a good first degree in a relevant discipline and that they can demonstrate their ability to undertake a sustained programme of independent research. The Unit gives preference to candidates with a postgraduate Masters qualification. Decisions on admissions are taken by two members of staff and interviews are conducted, often by Skype for international candidates. Students are only recruited where appropriate supervision is available. Supervisors are allocated on the basis of research expertise, workload and supervisory experience. The SBE PhD Programme Directors have oversight of the supervisory arrangements and can assist in the resolution of any issues. Applicants with disabilities are invited to identify special needs and support requirements, and the University's Counselling and Disability Service provides them with the appropriate support.

Academic support for research students is provided first and foremost by their supervisors. All new students are allocated two supervisors. The SBE Research Office also gives support to the students on administrative matters. In addition the University offers a wide range of support facilities, including the Graduate School, the Student Advice Centre, the Research Student Office

in the Registry, the Maths Education Centre and the English Language Support Unit.

Research students are integrated into the research culture of the Unit through regular supervisory meetings, association with a Discipline Group, Research Centre or RIG, and attendance at research seminars. The Marketing and Retailing group, for instance, run an annual PhD mini conference at which research students present their work to other marketing PhD students, students from other disciplines and other universities, Loughborough staff, and invited staff from universities in the UK and overseas. The Centre for Professional Work and Society ran a PhD Colloquium for their students in June 2013. Staff-led PhD projects (see section [b], objective v.) provide a close alignment between staff research interests and the research students' work.

Research student progress is monitored through regular supervisory meetings which are held at least on a monthly basis. Written records of these meetings are maintained, often using the electronic CoTutor system, and monitored by the SBE Research Office. In addition, a major academic progress review, against published criteria, is held at the end of each year of registration. Students are required to produce a significant piece of written work and to report on the development of their transferable skills. They undertake an interview with an independent assessor who provides research advice to the student as well as a recommendation concerning progression to the next year of doctoral study.

The Unit provides research and research skills training through academic supervision, access to modules on postgraduate programmes and the first year training programme. This programme includes units on research design, management of research, and two units each on qualitative methods and quantitative methods. Students submit four assignments and give one group presentation to assess their learning during the first year. Additional workshops are run e.g. a writing workshop run by Kerry Young, a successful novelist with a social science PhD. Other SBE events are held with a specific focus on research students. For instance, the Glendonbrook Centre for Enterprise Education ran a showcase event in July 2013 for research students. Caterpillar presented a case study to the students, who worked on the problem and then presented back to the company. Tako and Robinson lead the EPSRC funded NATCOR (National Taught Course Centre in Operational Research) biennial one week PhD courses on simulation at Loughborough University. This course is attended by around 50 research students from the UK (including Loughborough) and further afield. Tako is a member of the NATCOR Executive Committee. Beyond specific training for research, the Graduate School, in partnership with the Unit, is responsible for the delivery of transferable and employability training to meet the requirements of the Vitae Researcher Development Framework.

The Unit provides each student with £400 per year for conference attendance. This can be supplemented by funding from the Graduate School and the supervisors' or Discipline Group's funding. For instance, research student Usman Aslam received additional Graduate School funding to give a paper at the European Conference on Information Systems in Barcelona in 2012. Research students are active conference participants and some have been recipients of prizes, for example: Sigrun Wagner who received the 'Neil Hood and Stephen Young Prize for the Most Original New Work' of the Doctoral Colloquium at the Academy of International Business UK and Ireland Chapter Conference (2008); Abhijeet Ghadge received the Best Doctoral Paper Award at the International Symposium of Logistics (2011); Ramya Parthasarathy was joint winner of Best Student Paper Award for the 15th International Academy of Management and Business Conference in Lisbon (2013).

Within the Unit, quality assurance of research degree programmes is provided by the ADR working with the PhD Programme Directors and SBE Research Office. At the institutional level, quality assurance is provided by the Dean of the Graduate School who is responsible for a range of research student business from admissions to examinations, as well as chairing student appeals. The Dean of the Graduate School leads a cycle of regular research degree programme reviews which are reported through the University Research Committee. The most recent Unit review took place in June 2013 at which the recruitment processes and training, including the student handbook, provided by the Unit were particularly commended.

d. Income, infrastructure and facilities

Since 2008 total expenditure on research has been £9.6m, with £2.6m coming from external

sources. Primary sources of external funding are research councils (EPSRC, ESRC), UK charities (e.g. British Academy, Chartered Institute for Management Accountants), UK Industry (e.g. Ford Motor Company, Jaguar Land Rover, Boots UK) and the European Commission. For instance, Coombs and Hislop led a project on the role of unlearning in healthcare managers' decision making which was funded by the National Institute for Health Research (£161k). Yang secured over €300k of European Commission FP7 funding as part of a larger consortium (€3.5m) for a three year project to develop an intelligent integrated support system for efficient water usage and resources management. Section [b], objective iii. describes the Unit's strategy for increasing external research funding.

SBE directly invests significant sums into the research of the Unit. Since the beginning of 2008 this funding has totalled £7m which has been split between supporting staff research through travel and conference funding (£700k) (section [e]), employing Discipline Group Research Officers (£1.5m) (section [c.i]), funding research centres (£800k) (section [b], objective i.) and providing PhD studentships and support (£4m) (section [c.ii]). On average the typical annual allowance per member of staff for travel and conference attendance is £2,000 per head.

Discipline Group Research Officers play a vital role in building the research capacity of the Unit. In a similar role to a research assistant, they work alongside staff in their associated Discipline Group supporting their research e.g. performing literature reviews, gathering and analysing data, and supporting grant and paper writing.

All members of staff are given individual office space and personal computing facilities. Research Officers work in an open plan office. Research students are provided with open plan office space, with computing facilities on each desk. Social space and space for informal meetings is provided for staff and students in a dedicated staff room, kitchen areas and the open plan study and coffee area on the ground floor of the SBE building. Following a major building extension just prior to 2008, a further £270k has recently been invested in providing additional office space, meeting and collaborative areas, a trading room and a video conferencing suite.

The SBE IT and e-Learning Team provides specific IT support for the research of the Unit. Software required for research (e.g. the Qualtrics on line survey platform) is purchased, installed and managed through this team. The SBE trading room, which supports finance related research, was launched in October 2013 with the Thomson Eikon software installed on 17 Macintosh computers in a dedicated laboratory.

The research of the Unit is further supported through the resources provided by the University. For instance, over £4 million has been invested in the 'Transforming the Library' project to provide a wide range of improvements to the existing facility. The University Research and Enterprise Offices provide research support to the Unit for the costing and pricing of research grants and contracts, and facilitate interdisciplinary bids. They also help target funding opportunities, support drafting of applications and help negotiate legal agreements. The SBE Research Office actively identifies and communicates relevant funding opportunities to staff in the Unit.

e. Collaboration or contribution to the discipline or research base

Collaborative and interdisciplinary research is being carried out between members of staff in the Unit. This work is encouraged, organised and recognised through the Research Centres and RIGs. Outside of the Unit, research is being carried out with staff from all of the University's other nine Schools, covering a diverse range of disciplines in engineering, computer science, sport, exercise and health science, mathematics and geography. Sage, for instance, is working with Dr Rees in the School of the Arts, English and Drama, exploring depictions of business failure in drama. Mechanisms for supporting interdisciplinary and collaborative research within SBE and across the University, as well as further examples, are described under objective vi. in section [b].

We have identified that the Unit has research collaborations with 48 different HEIs across the UK. Internationally, staff are performing research with institutions (number in brackets) in Europe (26), USA (15), South America (2), Asia (20) and Australasia (10). Many of these collaborations involve interdisciplinary work. Collaborations with external researchers are actively encouraged and supported through travel and conference funding. The Unit's international strategy is led by the SBE Director for Internationalisation (Cheyne) and supported by the SBE International

Development Officer. One aim is to create links with international institutions for research purposes. This includes a visitors programme encompassing our visiting Professors (e.g. Ian Lings, Queensland University of Technology; Robert Davison, City University Hong Kong; Bruce Kaufman, Georgia State University), seed corn funding for developing international collaborations (e.g. £10k in 2013) and visits to potential international partners (e.g. Peking University Business School; Tsinghua University and Beijing Institute of Technology in September 2013). The Unit's five international Professors provide valuable links with institutions overseas: Vienna University of Economics and Business (Diamantopoulos), Ruhr-Universität Bochum (Wieseke), Griffith University (Wilkinson), University of Auckland (Myers) and University of Nabraska-Omaha (Wohar).

Some examples of successful international collaborations:

Yang supported work by Huazhong University of Science and Technology (China) on multi-department and multi-stage cooperative decision-making which received over £100k from the National Natural Science Foundation of China;

Ackers was a Sir Alan Sewell Visiting Fellow, Griffith University, Australia (2009);

J. Liu's work at Shanghai Baoshan Iron and Steel Corporation with the Logistics Institute of Northeastern University (China) and the RH Smith School of Business at the University of Maryland, led to the implementation of a decision support system which has generated a cumulative benefit of $77m (finalist for the INFORMS Edelman Award in 2013).

Staff are involved in and leading networks and clusters with research users. For instance, Herbert leads the Chartered Institute of Management Accountants-Loughborough Shared Services Forum that is part of the Centre for Global Sourcing and Services. The forum meets quarterly and includes academics from Loughborough and representatives from organisations including, Shell, Rolls Royce, Research Councils UK, British Airways, Department of Work and Pensions, Grant Thornton UK LLP, Glasgow City Council, Associated News, ITV and Network Rail. The aim is to bring together senior leaders in the field to examine the common challenges faced by the continued evolution of the finance function and to share best practice. Ackers is a member of the Advisory Group on History & Policy for the Trade Union Forum; a group that meets regularly, bringing together trade unionists with professional historians. These networks and clusters have enriched the research environment through funding, providing research data, promoting our work and providing critical evaluation towards ensuring that our research matters.

The tables below highlight examples of editorial roles, conference organisation and keynote/plenary presentations, prizes and awards, and leadership roles in professional associations and learned societies.

Examples of editorial and joint editorial roles during the REF period: Information Systems Journal (G. Fitzgerald - Editor in Chief); The Service Industries Journal (Howcroft); International Marketing Review (Cadogan); Journal of Simulation (Robinson); International Journal of Emerging Markets (X. Liu)

Examples of roles as senior and associate editors during the REF period: European Journal of Marketing (Souchon); Scandinavian Journal of Management (Coupland); Human Resource Management Journal (Wilkinson); Journal of Information Technology (Oshri); Journal of Marketing Management (Michaelidou); International Journal of Management Reviews (O'Sullivan); Information Systems Research (Myers); Information Systems Journal (Doherty, Mayasandra-Nagaraja); European Journal of Finance (Green)

Examples of editing journal special issues during the REF period: European Journal of Information Systems (G. Fitzgerald); International Marketing Review (Michaelidou); International Journal of Production Research (Dani); European Journal of Operational Research (Franco); Production Planning and Control (Radnor); Accounting, Auditing and Accountability Journal (Grubnic – winner of the Emerald Outstanding Special Issue Award, 2012); Industrial Marketing Management (Gruber)

Examples of key roles in conference organisation during the REF period:

X. Liu: Chair, 19th Chinese Economic Association (UK) Annual Conference, 2008
Cadogan: Co-Chair, Academy of Marketing Science Doctoral Consortium at World Marketing

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Congress, 2009 and 2011
Robinson: Co-Chair, OR Society Simulation Workshop 2008 and 2010; Organising Committee, INFORMS Simulation Society Research Workshop, 2009; Registration Chair, Winter Simulation Conference, 2011
Chizema: Organising Committee, International Conferences on HRM and the Management of Organisations in Africa, 2010 and 2012
G. Fitzgerald: Chair of the UK Academy for Information Systems Conference, 2011
Myers: Program Co-Chair, International Conference on Information Systems (ICIS), 2011
Oshri: Organising Committee, Global Sourcing Workshop, 2011-13
J. Liu: Co-Chair, 18th International Conference on Automation and Computing, 2012
Tako: Chair, Young OR 18, 2013

Examples of plenary and keynote talks that have been given during the REF period:

A. Wilson (with Howard Thomas): European Institute for Advanced Study in Management 40th Anniversary Celebration Conference, Brussels, 2011
Cadogan: Korean Scholars of Marketing Science Fall International Conference, Seoul, 2011
Robinson: Brazilian Society of Operations Research, Bento Gonçalves, 2010
Radnor: Lean in Services and Higher Education Conference, Portsmouth, 2012

Examples of prestigious prizes and awards won by SBE staff during the REF period:

Doherty: the OR Society's Stafford Beer Medal, 2008
Tako: the Dana Meadows Award from the System Dynamics Society, 2008
Gruber: the Academy of Marketing Research Initiative Award, 2008
O'Sullivan: the Standard Life Investment Annual Finance Prize, 2012
Cadogan: the Journal of Small Business Management Best Empirical Paper Award, 2011
Diamantopoulos: the Outstanding Paper Award from the European Journal of Marketing, 2011
J. Liu: a member of an international team that reached the final of the prestigious INFORMS Edelman Award, 2013
Hall and *Howcroft*: the European Financial Management journal 2012 Top Download Award

Examples of leadership roles in professional associations and learned societies:

Radnor: Vice-Chair, 2011, and then Chair, 2012, of the British Academy of Management
G. Fitzgerald: President of the UK Academy for Information Systems, 2011-12, and Vice President (Publications), Association of Information Systems, 2007-2010
Robinson: Vice President of the Operational Research Society, 2009-2012, and President Elect, 2013
X. Liu: President of the Chinese Economic Association (UK), 2008–2009
Milne: President-Elect of the International Banking, Economics, and Finance Association, 2013

Other examples of significant roles include:

Souchon: Academy of Marketing Research Committee, 2010-present
Tako: Executive Committee of the National Taught Course Centre in Operational Research (NATCOR), 2011 – present, and module leader of the Simulation Course
Michaelidou: Founder and leader of the Academy of Marketing Special Interest Group on Consumer Research, 2009–present
Gruber: Founding Vice Chair of the American Marketing Association Marketing for Higher Education Special Interest Group, 2011-present
Doherty: Committee of the UK Academy of Information Systems, 2012-present
Yang: Treasurer of the Chinese Automation and Computing Society in the UK, 2010-present
Grubnic: Treasurer of the Public Services and Charities Special Interest Group, British Accounting and Finance Association, 2007-present

In summary, the Unit is highly engaged with the business and management discipline, contributing to research across the University, nationally and internationally, both with academic and non-academic users. Members of staff are actively involved in the discipline through editorial roles, conference organisation and in key roles in their professional societies.