

<p>Institution: University of Hull</p>
<p>Unit of Assessment: C19: Business and Management Studies</p>
<p>a. Overview</p> <p>In RAE 2008, the Hull University Business School (HUBS) submitted the work of 6 research centres. By 2010, the number of centres had expanded to 8. In 2013, a review of school governance noted that the separation of the research centres from the 'subject groups' (departments), where the teaching is organised, does not fit with our vision of being a strongly research-led school. HUBS therefore merged 6 of the 8 centres into the subject groups to better position our research to inform other activities. These centres were re-named 'research groups'. They continued to have their own leadership and budgets, but these were made accountable to the Heads of Subject Groups. Only the Centre for Systems Studies and the Logistics Institute retained their original identities. This is partly because they are our 2 longest-standing research centres, with well-established national and international reputations, and partly because there are significant opportunities to expand their membership across the University to include people from other disciplines. The current 8 research groups are: Accounting; Finance; Economics; Centre for Systems Studies (CSS); the Logistics Institute (LI); Marketing; Regional and International Business; and Organisational Behaviour and Human Resource Management (OB/HRM).</p>
<p>b. Research strategy</p> <p>Objectives and Activities, 2008-2013</p> <p>In RAE 2008, HUBS said that it would prioritise research that is internationally excellent, relevant to practice, interdisciplinary and developed with international partners. We have successfully pursued these priorities, and added local and national partners to the list. This is in keeping with the new University mission, which asks us to be both research-led <i>and</i> an anchor institution in the region. Our strategic objectives since 2008 to support these priorities have been:</p> <p><u>Further Strengthening the School's Unique Selling Points.</u> Our 2008 RAE identified CSS and the LI as practice-relevant unique selling points (USPs). Systems and logistics are major applied research strengths that few other UK universities can claim. Stakeholder consultations have confirmed the value of these USPs, leading to further investments in staffing. The LI has targeted its research on supply chain management, and has expanded its ranks of early career researchers (ECRs), giving it a sound platform for producing internationally excellent research. Further professorial recruits (Midgley, Vidgen and Williams) have joined CSS to maintain its world-leading position in the international systems community following the retirement of Jackson and Clarke (both now Emeritus). CSS writes for both the systems and OR problem structuring communities, and work for the latter has been enhanced by Visiting Professorships for J Rosenhead and J Friend, giving CSS one of the largest problem structuring research groups in the UK.</p> <p><u>Increasing the Number of Internationally Excellent Research Groups.</u> In the 2008 RAE, CSS and Economics were our strongest research groups, with the LI being an emerging focus. These 3 have remained strong. OB/HRM has been substantially renewed by 3 professorial appointments following staff departures (see Section c.i for details), and the group is now well positioned for international research leadership. The other area in which we have substantially recruited is Finance, which is now much stronger in terms of high quality publications than it was in 2007/8.</p> <p><u>Increasing the number of papers of a high international standard.</u> This has been pursued with vigour through 4 means. The first is recruitment. There has been a step change in the research quality of staff recruited since August 2010, as illustrated by monitoring data (see Section c.i). Second, we have used workload incentives. Prior to 2008, research allocations were based on criteria that were only loosely linked to the quality of journal publications. A new system was introduced in 2009 (and subsequently adjusted) to tie research workload specifically to publication quality (again see Section c.i for how this is assessed). Third, we have injected additional resources (in the form of staff time) into research, so we can now give all staff producing papers of a high international standard at least 40% research time. Staff not producing papers of the required standard, but still publishing, receive 25%, which is sufficient to support them in raising their aspirations and working to meet them. The fourth and final form of help for increasing the</p>

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proportion of high quality publications is mentoring: every researcher has a mentor with experience of publishing at the appropriate level.

Enhancing Interdisciplinary Collaboration. In 2012, the University launched 6 interdisciplinary themes, in which it aims to develop truly world class research. One of these (Connected Communities) has been led from the start by HUBS (Midgley and Vidgen), and we strongly promote all the themes through regular communications (see Section e for further details).

Growing and Developing the PhD programme. We have undertaken a fundamental, participative review of the programme, with many changes implemented over a 3 year period. The number of students in years 1-3 has risen from 70 in 2008 to 146 in 2013. At the same time, submissions in 4 years have risen from 38% in 2008 to 70% in 2012, indicating an improvement in quality as well as quantity. We have developed strategic alliances with ITESM (Mexico) and Mzumbe University (Tanzania), with cohorts of their academics doing PhDs with us (see Section c.ii for details). We have also designed a joint PhD with Melbourne University in ‘Systems Thinking and Sustainability Engineering’, ready to launch in September 2014. Thus, the international dimension of our PhD programme has been significantly enhanced.

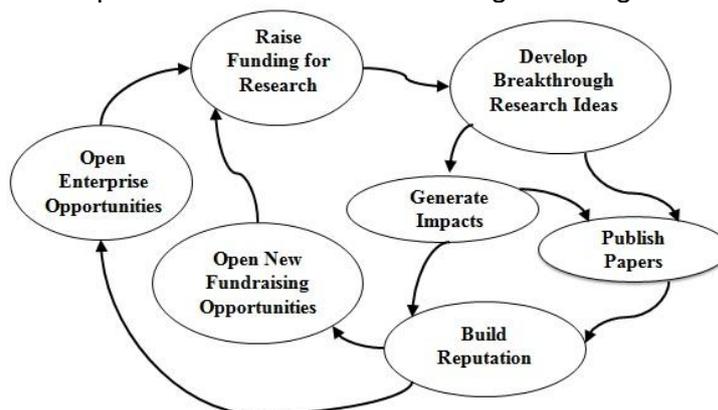
Expanding Investment. The non-salary research budget in 2008 was £184k. Now it is £478k, showing a commitment to research support outstripping the growth in staff numbers.

Enhancing Strategic Oversight. In 2008, most of the time of the HUBS Research Committee was taken up by operational matters, such as reviewing requests by staff for funding to attend conferences. 2009 saw a decentralisation of our internal research funding to the 8 research groups. This freed Research Committee to be much more strategic. Also, we expanded our administrative support. In 2008, there were 1.5 research administrators. There are now 3.5 administrative staff, which allows us to gather and analyse data on research performance to inform strategic decision making, in addition to being fully responsive to the needs of our PhD students.

Transforming the Governance of HUBS Research. There have been 4 major changes since 2008. We merged 6 of our 8 research centres into the subject groups (see the Overview). The purpose of this was to make the school more strongly research-led. Second, we strengthened the roles of the Heads of Subject Groups, giving them line management responsibility for the research performance of staff. At the same time, the University made new appointments to these positions, so all of our Heads of Subject Groups are now excellent researchers. A third major change, in 2012, was the introduction by the University of 7 KPIs, 3 of which concern research: the proportion of staff producing high-quality research; research funding; and the number of PhD students as a proportion of the student body. The school has aspirational but achievable targets in all these KPIs, increasing from 2012/13 through to 2016/17. The fourth change, in April 2013, was the recruitment of a new Associate Dean for Research and Enterprise (AD for R&E), with an expanded remit compared with the previous Research Director role.

New Strategic Priorities and Developmental Areas

In April 2013, the first priority for the AD for R&E was to renew the research strategy, taking account of the above changes in governance and a decision by the University to launch an Academic Investment Initiative in September 2013. The latter is designed to support all research active staff to achieve a GPA of ≥ 3 by 2019, and it involves mentoring, staff development and performance management. The school aims to achieve the target without allowing the proportion of teaching-only staff to rise above 25%. The new research strategy addresses all of this, and also looks at how the various aspects of research can come together to generate a ‘virtuous cycle’:



36 strategic initiatives and actions have been identified to support each of the aspects of the virtuous cycle (and their interactions). Some have already been implemented and others will be put into operation post-REF, with targets and measures established to ensure effective review. However, the overarching strategic priority remains research that is internationally excellent, relevant to practice, interdisciplinary and developed with local, regional and international partners. We are planning growth of up to 20 more research active staff over the next 5 years (and will replace staff who leave), in line with expanding student numbers, reducing staff-student ratios and the launch of new degree programmes. We will continue to appoint only high quality researchers and ECRs. In 3 years, the PhD programme is expected to attain a steady state of 160 students in their normal period of study. HUBS is also at the advanced stages of developing 5 new initiatives to enhance its research and synergise with the University mission and interdisciplinary themes:

1. An interdisciplinary centre, with membership from HUBS (particularly Accounting and OB/HRM) as well as the wider university, focused on business ethics and corporate social responsibility (CSR). The aim is to produce internationally excellent research that is highly relevant to business and the economy. The proposed centre fits well with the theme of 'responsible leadership for a complex world' (the main branding of HUBS) as well as the University's Ethics and Social Justice interdisciplinary theme. It will raise the profile of our OB/HRM group's CSR research, and will also support our Accounting group to strengthen its international standing. To further enable the latter, a new Professor of Accounting will be recruited (replacing one who recently left).

2. An interdisciplinary centre (with participation from HUBS, Geography and Politics in particular) focused on regional business development. Given that the University aspires to be both research-led and an anchor institution, this centre will undertake applied research of a high international standard that is also focused on local impacts (especially working with the Humber Local Enterprise Partnership). This represents a strategic, long-term investment in our Regional and International Business Group, which will lead the new Centre. Thus, we will continue to expand the number of internationally excellent research groups in HUBS.

3. In 2014, 2 new recruits in complexity science will join Espinosa, Vidgen and Williams to create a critical mass in this area, giving CSS a new, cutting edge research specialism. We will also recruit a new Professor of Logistics to assume the Directorship of the LI following the promotion of its previous Director to the position of Associate Dean for Business Engagement. These represent further investments in our key USPs.

4. CSS and the LI will open their membership to the wider university to facilitate new collaborations, especially with health, social policy and environmental science, where systems thinkers and logisticians are increasingly being asked to participate in funding bids. Further interdisciplinary income generation will help drive the 'virtuous cycle' of growth in internationally excellent research, publication, reputation and impact.

5. Complementing our PhD programme, we will launch a DBA in September 2014, with a first cohort of 20 students. This will bring our total number of doctoral students to over 200 within 3 years. The DBA will focus on internationally excellent, practice-relevant research.

c. People, including:

i. Staffing strategy and staff development

Staffing Strategy

There have been 2 key developments in wider University policy. First, from early 2013, all Heads of Subject Groups were required to be professors of international standing, so they could provide strong research leadership. This resulted in the appointment of 4 new Heads, interviewed by the Vice Chancellor. Second, the Academic Investment Initiative will require all research active staff to have a GPA of ≥ 3 by 2019.

In 2008, there were 83 academic FTEs in total. There are now 100 FTEs with research in their contracts, plus 13 teaching-only FTEs and 2 research staff. All academics have their own offices, and there is physical space for some further expansion.

Most appointments in this time have been made to strengthen research leadership and research, which have been first priority objectives. All research groups have benefited, with those prioritised in our strategy (CSS, LI, OB/HRM and Finance) expanding significantly, and the other groups expanding moderately or staying the same size. New staff members are almost all stronger

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in terms of publication quality than those they replaced. A strategic decision was taken in 2007/8 only to recruit people producing papers of international standing and ECRs, and the table below shows that our recruits during the REF period are higher calibre than previously. This table uses 2013 data from our evaluations of staff research for the purpose of workload allocation, where we defined 'producing papers of international standing' as a GPA of 2.75 or above (see later for details of the review process).

	Research Inactive	Not International	International or ECR	Exceptional
Staff in post pre-2007/8	41%	25%	31%	2%
Recruited since 2007/8	6%	11%	65%	17%

55% of our staff members were recruited in the REF period, partly due to expansion and partly due to turn-over. 68% of academics are male and 32% female. The University is aware of the need to continue to address gender imbalance, especially at senior levels, and has applied for the Athena SWAN Bronze Award, which accredits action plans to tackle gender inequalities. 56% of staff are British and 44% from overseas, which reflects an emphasis on the global recruitment of excellent researchers. A strong commitment to equality and diversity is supported by online training modules and bespoke training packages, delivered in house, with an 86% participation rate across all University staff, and monitoring and follow-up to move towards 100%.

There is a reasonable age distribution: 10% of HUBS staff are 60 or over; 26% are 50-59; 38% are 40-49; and 26% are under 40. Succession planning is undertaken: e.g., Midgley was recruited a year before Jackson retired, thereby facilitating continuity of research leadership in CSS. Succession is also supported by the recruitment of ECRs (22 since 2008) and other staff.

10 professors have left HUBS in the last 2 years. Accounting was significantly weakened, first by the loss of Wickramasinghe, and later by the departure of Haniffa and Demirag. Rodgers has been recruited to improve the standing of this group, and another professor will be appointed in 2014. OB/HRM lost Orr, Coupland and Lange (and Lawton earlier), but after being temporarily weakened, it recruited Blenkinsopp, Collins and Bozionelos. Leadership in the LI has been impacted by Wong leaving, but a new professor will be recruited in 2014. Lalwani (LI) and Jackson (CSS) both retired, but continue to contribute in an Emeritus capacity. Franco (CSS) was active in OR problem structuring, but others are very productive in this area, so his departure was not damaging. Indeed, it has created an opportunity to recruit a new Professor of Complexity.

The recruitment of Blenkinsopp has been important, as OB/HRM has staff in both critical management and organisational psychology. Blenkinsopp has a background in psychology and now works in critical management, so is able to offer leadership bridging these areas. Johnson and Midgley were strategic recruits from outside academia with a view to leading on impact. Williams was recruited as Dean, and also adds value to CSS by bringing new expertise on complex project management. Vidgen likewise brings new skills to CSS (complexity and big data analysis), and the addition of Hudson has strengthened Finance.

Espinosa has a 50/50 joint appointment with the University of Los Andes, Colombia, which is one of our strategic partners. Her role includes supporting research collaborations across the 2 institutions. We have 3 other staff who are part-time for personal reasons.

Our 2 current researchers on temporary contracts are both employed on externally funded research. Researchers on temporary contracts are encouraged to apply for continuing positions when vacant, and one made this transition during the REF period. The University has an action plan for implementing the Concordat to Support the Career Development of Researchers. In this context, a pilot of the Vitae Researcher Development Framework app has been run, and continued use is encouraged. Hull has participated in 2 national online surveys of researchers and research leaders, yielding data to support implementation of the Concordat. Temporary and part-time staff get the same support for their research as those on continuing contracts (£2k p.a. personal research expenses, access to group funds, etc.) and are provided with career guidance (appraisals and staff development).

Staff Development

All research active staff members are expected to have a PhD. The school has made a major investment in this: from 2008-2013, 9 staff members were awarded Hull PhDs, and 8 are currently studying at doctoral level (in Hull and elsewhere). The latter receive dedicated workload time for

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their studies, and those registered at Hull have fee waivers.

Support for ECRs includes mentoring from a relevant research leader; 40% research time protected for 2 years; partnership with a highly experienced academic on PhD supervision; and encouragement to publish in our research memorandum series (1 refereed research memorandum from Li, an ECR, is included in our REF submission).

Staff development in HUBS is the responsibility of the Head of Subject Group, with the Dean and AD for R&E playing active roles. Heads have annual appraisal meetings with staff to enable development needs to be identified and provided for. Clear, relevant and measurable short- and medium-term research objectives are set in the appraisal process. Appraisals are also used to work with those whose research performance is below expectations, so support can be provided. Mentoring is organised by the Head of Subject Group between experienced research leaders and other members of staff, often resulting in joint publications. All research groups meet at least quarterly (some as often as weekly), which helps reinforce a collective research identity and ensure that research is on track to meet HUBS objectives. There is a university-wide academic promotions policy, with research being an important area for assessment.

Research workload allocation is based on fair and transparent review. Each person's publications in the last 5 years are assessed by nominated research leaders, Heads of Subject Groups, the AD for R&E and the Dean. Those producing papers of international standing receive 40% research time. In addition to outputs, we also assess research income (over 5 years), PhD submissions in 4 years and impact. Exceptional performers on all 4 criteria receive 50% research time. Equal opportunities are protected by taking account of career interruptions and other personal circumstances. Staff recruited from outside academia, without a continuous publication record, are given 2 years of 40% research time to establish themselves before their research is assessed. A formula is in place to allow staff to buy out teaching using research grant income.

Research performance is monitored and evaluated throughout the academic year. Internal, anonymous peer review of publications (implemented since 2010) helps to identify who is producing papers of a high international standard, and since 2011 we have used the selective external reviewing of papers as a moderating influence, to ensure the internal reviewing is realistic. This review process will shortly be joined up with appraisals and workload allocations, to ensure an even stronger basis for decision making and the provision of appropriate support.

1- or 2-semester study leaves are awarded on the basis of strong plans (i.e., benefitting the person's own research, that of their group and HUBS). 20 have been given in the last 5 years. Examples include Espinosa writing a book; Thursfield undertaking ethnography with a trade union; and Tsagdis visiting France and Colombia for collaborations. Rodgers is a Franklin Fellow of the US State Department: a prestigious appointment, allowing him to develop a unique dataset that he is now analysing in the UK. Johnson was awarded a Marie Curie Fellowship so he could visit Poland to collaborate on regional development projects for the EU and the Polish Government.

Each research active staff member has a personal research allowance (£2k p.a.). Every research group also receives £3k for activities of collective benefit, such as seminars from visiting academics, writing retreats, training, etc. In 2013, a £10k p.a. HUBS budget was established for Horizon 2020 bidding. The research budget in HUBS this academic year (excluding grants, salaries, internationalisation and library) is £478k.

Staff and PhD student research involving human participants must receive prior clearance from the HUBS Ethics Committee. This also oversees compliance with funders' data management requirements. All bids for external funding with a Hull PI are constructively peer reviewed, and staff members have a clear flow-chart showing the bid development and approvals process. Relevant research leaders are involved in approving bids, along with the AD for R&E and the Dean.

ii. Research students

	2008/9	2009/10	2010/11	2011/12	2012/13	Total
PhD Awards	6	12	13	18	36	85
Professional	0	0	0	0	0	0

Research studies lead to three possible awards: MRes, MPhil and PhD. The MRes gives research training and provides a sound basis for progression to the PhD.

With 70 full-time PhD students in years 1-3 (or the part-time equivalent) in 2008, rising to 146

in 2013, there has been substantial, planned growth, linked in part to the increase in the number of research active staff. This has been accompanied by improved quality, facilitated by strong scrutiny of applications, recruitment of high calibre supervisors, rigorous formal assessments of students in the 1st year, and 6-monthly progress reviews. Evidence of the increase in quality is a rise in submissions within 4 years from 38% in 2008 to 70% in 2012.

In addition to our own students, we hosted 35 visiting scholars from PhD programmes overseas, coming to spend between 3 months and a year to study with our staff.

In the REF period, we awarded 56 PhD scholarships to HUBS students. In 2012 there were 110 applicants for 13 scholarships, rising to 327 for 11 scholarships in 2013. This level of competition allows us to be very selective, and look for students who will strategically enhance the work of our research groups. We have had 2 students on Research Council scholarships. One of these won a Regional Leadership Innovation Award. Also, a student on a donated scholarship received an Emerald/EFMD Highly Commended Doctoral Research Award.

In 2008-2013, 9 of our own staff members were awarded PhDs, and 8 are currently studying at doctoral level. 19 academics from ITESM (Mexico) and 10 from Mzumbe University (Tanzania) are doing PhDs with us, funded by their own universities. This allows us to support ECRs in developing countries while building long-term, strategic international partnerships. We have also designed a joint PhD with Melbourne University, which will launch in September 2014.

All students have 2 supervisors, and 76% are 1st or 2nd supervised by staff entered into the REF. Supervisors must be research active, have completed supervision training, and at least 1 supervisor in each pair must have a successful prior completion. Staff members receive workload hours for PhD supervision in addition to their research allowances, which incentivises quality input. However, no more than 6 1st supervisions are allowed. Supervisors are required to meet with students at least 12 times p.a., and this is monitored. Issues of supervision quality can be raised in 6-monthly reviews or at any time with the Graduate Research Director. Requests for changes of supervisor are responded to swiftly, with resolution in 48 hours in almost all cases.

The research training programme (which has been drafted to meet Research Council and QAA guidelines) has more than 200 modules to choose from, including generic topics (e.g., Project Managing your PhD) and specialist modules (there are 13 in business and management research). Participation in international conferences is facilitated by a £34k p.a. budget (£24k from HUBS and £10k from the University's Graduate School), and research training credits are given for presenting. HUBS has held 5 in-house PhD colloquia, and 5 more have been run by the wider University. Student publication is strongly encouraged, with research training credits given for refereed papers, and a 'Writing for Publication' module helps students along the way. There is a clear focus on graduate employability: 12 modules are designed to develop the full set of skills listed by RCUK in *Researchers' Skills and Competences*. Part-time students do their research training in Easter or Summer Schools. HUBS is a member of the Northern Advanced Research Training Initiative (NARTI), funded by the ESRC until 2011, which gives students free access to specialist modules at a consortium of Northern universities.

Our PhD students are core members of our research groups, and having rooms for them in HUBS is essential to ensuring that they are fully included in all activities. PhD students are represented on the Graduate Research Degrees Committee, Quality Committee and School Board, and they have a Staff-Student Committee. Students participate in many research group meetings and seminars from visiting speakers, and their 1st year formal assessments are attended by both staff and students. They organise an annual PhD conference, contribute to a buddy scheme, undertake paid teaching and consultancy, engage in voluntary projects in developing countries and contribute to the organisation of international conferences.

In 2014, we will launch a DBA to sit alongside our PhD. This will be for senior managers who do not necessarily want academic careers, but are interested in undertaking internationally excellent, practice-relevant research with social and organisational impacts.

d. Income, infrastructure and facilities

Income

As well as small grants, the following larger, more prestigious ones were received: *Regional & International Business*: Johnson had 4 ESRC grants to investigate the impacts of different ESRC-funded research on end users. *Logistics Institute*: 4 EPSRC grants on ICT for road transport

logistics, cargo screening, supply chains and low carbon shipping; 4 large projects funded by regional business organisations; 2 ESRC projects on environmental logistics and EU transportation; and 2 ESRC/SAMS Fellowships. *OB/HRM*: Cook had 2 ESRC grants to research employee-sponsored volunteering and migration in China. Lawton did governance research for the Standard Board for England. *Economics*: Abbott had an ESRC project on household recycling, resulting in one of his REF papers, and Dnes received funding from Nuffield and Leverhulme. *Centre for Systems Studies*: Espinosa was part of 2 EPSRC consortia on complexity, and 3 of her 4 REF papers came from that research; Atkins, Hindle and Midgley received NERC funding for interdisciplinary research on recycling toxic waste; Gregory had funding from Atlantic Philanthropies to develop a new approach to organisational evaluation; and Atkins had many interdisciplinary collaborations on sustainability funded by the EU, NERC, CEFAS and others (all his REF papers relate to these). Midgley received a New Zealand government sub-contract for research on controversial new food technologies, which was only possible because one of his REF papers had established the novel methodology to be used in the study.

Recorded external research funding for the REF period was £1,538,467. This modest figure reflects the fact that, over most of the REF period, writing papers of a high international standard has been prioritised over raising grant income. While there are examples of publications being *aided* by grant income (see above), for the most part HUBS hasn't been *dependent* on it, as many projects were undertaken with external organisations on an unfunded basis to generate impacts and papers. There has been a long tradition in HUBS of undertaking pro bono projects in disadvantaged communities and developing countries. However, having improved the quality of our research, we have now turned our attention more fully to income generation, as enhancing this is a means to further expand our research base. We recognise that it will take a culture shift to significantly increase the number of staff writing high quality research proposals, and to this end we have designed a set of measures to deliver results in the next 5 years:

To raise awareness of the value of external research funding, we are communicating with staff that it is an essential part of the 'virtuous cycle' of research activities (see Section b). Income generation is now a University KPI, and the target is £590k p.a. by 2015/16. This is more than double our 2012/13 income, but it is quite realistic given that research income generation has only become a major focus for HUBS in the last year, and it also reflects the recent recruitment of new staff with good research fundraising track records.

In 2013/14, we will facilitate workshops to support researchers in aligning research with end user and funder environments, focusing in particular on potential breakthroughs and impacts. We will put greater emphasis on establishing on-going (not one-off instrumental) relationships with potential end users. We will also take every opportunity to engage with research funders to support their priority-setting.

Working with the University's 6 interdisciplinary themes will be particularly important, as many high priority research problems require interdisciplinary synergies to address them.

The value of transnational partnerships, both within the EU and more widely, will be emphasised. Special preparations have been made for Horizon 2020 (e.g., a £10k travel fund in HUBS; new recruitments by the University Research Funding Office to support bidding), and collaborative partnerships across the EU are already being explored.

We have developed a new formula for teaching buy-outs, which will incentivise externally funded research, and we have also relaxed restrictions on the institutional overheads required, so staff can take on projects for charities that will not pay these. We will also look at how our recruitment strategy can further support fundraising for research; e.g., by offering potential job applicants with strong income generation records strategic opportunities, such as recruiting junior staff, or founding new research centres.

Infrastructure and Facilities

In HUBS, staff members have individual offices and their IT equipment is replaced every 3 years. Many software products are available to staff and research students (e.g., NVivo, SPSS, EndNote, RefWorks, Compustat and DataStream Advanced). The HUBS Research Office (with 3.5 staff) provides a 'one-stop shop' for staff and student inquiries. It supports the research degrees, manages grant applications and ethics approvals, and generates data on research performance.

Research students have 2 rooms in the School with 36 work stations (double the capacity in 2008), printing facilities, photocopying, telephone lines, audio recording/transcription equipment

and personal lockers. A further 60 dedicated work stations are available 24-hours a day in the University's Graduate School. The Graduate School oversees the monitoring of student progress, co-ordinates research training and delivers continuing professional development for supervisors.

An online Graduate Virtual Research Environment has assembled the collective stories of staff and research students across the University, enabling students to access over 200 short videos illustrating individual research achievements and advice on all aspects of the PhD journey. The first version of this was developed by a HUBS student. We are the only UK business school to buy all PhD students free access to MySupervisorOnline.com: a social networking site where PhD students can be part of a global community of like-minded scholars.

Our library has had a £28m upgrade in 2013, and offers state-of-the-art provision, both on campus and at a distance. Specific activities and services supporting research include print and digital library and archival collections; a wide range of search tools; access to inter-library loans; physical spaces for study, including dedicated provision for PhD students; management of the Hydra digital repository in liaison with the Converis research information system; and advice, guidance and training for staff and PhD students on literature search and information management. Students have ready access to secondary data through the Library. They can also use a free, monthly bus that runs from the University to the British Library at Boston Spa.

The University has 'support for research' as one of 9 key objectives for its ICT strategy, 2011-2015. Specific initiatives include a major refresh of infrastructure (e.g., we are now fully wireless accessible); support for Converis; further support for ICT-enhanced learning; becoming an authorised registration authority for the National Grid Computing Service; provision of dedicated storage for hosting and analysing large volumes of research data; and improvements in federated access to facilitate collaborative research with other institutions.

In response to EPSRC requirements, the University's data management roadmap sets out how advice on the completion of data management plans will be provided to staff bidding for research grants; what support will be provided for data management once projects have begun; what infrastructure will be available; and what training in data management will be given. Data management is also being addressed through the research ethics approvals process.

The University hosts an Enterprise Centre (EC), which places our institution at the heart of enterprise activity in the region. The EC is home to many start-up companies and 'For Entrepreneurs Only', a group of the region's leading entrepreneurs with a combined worth of £2bn. It contains the University Research Funding Office, which helps identify funding sources, provides staff development for researchers and produces budgets for funding bids. The EC also houses a Knowledge Exchange, supporting 2-way engagement between the University and the wider community. The EC's role includes representation on boards of influential regional bodies, such as the Humber Local Enterprise Partnership (LEP), the CBI and the Chambers of Commerce. The Vice Chancellor is on the steering group of the National Centre for Universities and Business. HUBS makes good use of the EC's contacts, exemplified by research with the Humber LEP (which promises to deliver significant impacts in the region) and our hosting of HumberPort, a consortium of organisations involved with commerce and marketing around our regional ports.

e. Collaboration and contribution to the discipline or research base

Collaboration

43% of our outputs in the REF are co-authored with others in the UK outside Hull, and another 46% are written with international collaborators. These figures reflect the truly co-operative and global nature of our research relationships. We have many international visitors (academics, PhD students and practitioners), staying with us for between 2 days and 1 year. Collaborators intending to work with us for 3 years or more are given Visiting Professorships (29 between 2008 and 2013) or Fellowships (16). An example is Cronin (Fellow, CSS), who has co-authored a paper with Midgley and has given him a subcontract to work with her in New Zealand on research into the ethics of new food technologies. Our own staff members also have 15 Visiting Professorships and 11 Visiting Fellowships at 26 universities in 17 different countries.

HUBS has 6 strategic partner institutions overseas and 12 specifically research-focused MoCs or MoUs. One of the most productive research relationships since 2008 has been with our strategic partner, the University of Los Andes (Colombia), where we have had a joint member of staff (Espinosa); academic exchanges (1 or 2 p.a. each way); research funded by a Colombian

building company; 2 co-supervised PhDs; 4 joint-authored papers; and a REF impact case study from the research reported in 3 of these papers. An example of a productive research MoU is with the Japan Advanced Institute for Science and Technology (JAIST): since 2008, there have been 8 academic visits (5 from JAIST to Hull and 3 the other way); 5 contributions by HUBS to JAIST conference committees; and Zhu was introduced to Ikujiro Nonaka (Visiting Professor at JAIST), with whom he co-authored a book. However, these institution-level collaborations are the tip of the iceberg: they are vastly outnumbered by strong, one-to-one collaborations, too numerous to list.

We also have researchers participating in international *networks*, some well established and some recently formed: e.g., Tsagdis and collaborators from George Washington, Heidelberg and York Ontario Universities provided research support to the Greek government's (€40m) "Creation of Innovation Clusters" initiative, aiming to develop export-oriented hi-tech clusters to counteract their recession; Blenkinsopp has been involved in an EU-funded study of the work of medical physics experts, involving institutions in 15 countries; Blenkinsopp and Bozionelos worked with academics in 20 countries as part of the Odette Network to develop a transnational study of attitudes towards bullying and emotional labour; Midgley has assembled a team of 80 researchers from 22 countries willing to test his framework for evaluating systemic problem structuring methods (research in the early stages); and Williams has written a monograph and 3 papers on project management with a network of 10 authors from different countries spread across 4 continents.

HUBS staff have many non-academic collaborators in the private, public, voluntary and community sectors. A strong cluster of industrial collaborators can be found in the LI, which runs a Logistics Club, bringing managers together with researchers to enable knowledge transfer and the development of new applied research collaborations. This cluster has enabled 4 Knowledge Transfer Partnerships (KTPs). Another cluster is the Humber LEP, which brings together the public sector and industry for economic innovation. Our Regional and International Business Group and the LI are working closely with the LEP, and the University invested £20k into this research (followed by £45k from the LEP) as part of its commitment to being an anchor institution.

The full list of non-academic collaborators is long (some feature in our REF3a), but it is worth focusing in particular on our action research, as this invariably involves equal partnership in knowledge co-production: e.g., Cook's action research on employer-sponsored volunteering with Hull City Council, the Hull and East Yorkshire Community Foundation, the Co-operative Group, the Federation of City Farms and Community Gardens, Irwin Mitchell Solicitors, Yorkshire Bank and Capita (see her impact case study for 5 papers and significant outcomes); and Espinosa's work with RHD (USA) and La Fageda (Spain) on employment for people with disabilities, as well as her partnership with an Irish eco-village on sustainable development (again, see her impact case study for 2 papers, a book and significant outcomes).

Interdisciplinary research is strongly supported. Examples include Midgley working with sociologists and a forensic biologist on research into the interpretation of forensic DNA evidence; Atkins, Hindle and Midgley collaborating with biochemists and geographers on the recycling of toxic waste; Bovis integrating knowledge from law into his research on public procurement; Colicchia using environmental science to inform her work on 'green logistics'; Cook working with a social policy researcher on how environmental NGOs in the UK engage with businesses; Tsagdis researching economic development in the EU, drawing upon the disciplines of management, economics and social policy; Zhu integrating work on Chinese philosophy into his strategy research; and Atkins working with marine biologists on sustainability.

The University has 6 inter-disciplinary themes in which it wishes to maintain or build world class research. We strongly encourage staff to participate in all these themes, and to leverage the potential for innovation and research income that comes from collaboration across faculty boundaries. We are actively monitoring whose research in HUBS aligns with the themes. 69% are signed up to one or more, with 29% in Connected Communities; 24% in Global Economy, Maritime and Security; 24% in Ethics and Social Justice; 19% in Energy and the Environment; 18% in Health and Well-Being; and 13% in Creative Economy.

Our membership of NARTI (see Section c.ii) gives PhD students access to specialist modules at other Northern universities. Following the end of ESRC funding in 2011, this has now become self-sustaining, with each collaborator investing £3k p.a. and providing free modules. Our joint PhD with Melbourne University on 'Systems Thinking and Sustainability Engineering' involves recognition of each other's provision, so students can train at either institution and then do fieldwork at the other.

Contribution to the Discipline and Research Base

All research groups hold seminars, which attract many international speakers. From 2008-2013, there were 401 seminars (more than one a week on average). The speakers came from 32 countries. To illustrate, in 2011/12, CSS held 23 seminars with speakers from Australia, Canada, Colombia (3), Italy, Japan, the Netherlands, New Zealand, Russia, UK (10) and USA (2). Many of our own staff also gave seminars in both UK and overseas Universities.

6 journals have had Editors in Chief in HUBS from 2008-2013: *European Procurement and Public Private Partnerships Law Review* (Bovis); *International Journal of Logistics Management* (Lalwani); *International Journal of Management Reviews* (Armstrong); *ISSS Bulletin* (Wilby); *Journal of the Operational Research Society* (Williams); and *Systems Research & Behavioral Science* (Jackson).

In addition, HUBS staff have held 16 Associate Editor or similar positions on *Academy of Management Learning and Education* (Armstrong); *Asia Pacific Journal of Management* (Bozionelos); *British Actuarial Journal* (Hudson); *Career Development International* (Bozionelos); *Economic Issues* (Abbott); *International Journal of Agile Systems and Management* (Tsagdis); *Journal of Development Studies* (Atkins); *International Journal of Logistics: Research and Applications* (Menachof); *Journal of Management Education* (Armstrong); *Journal of Political Marketing* (Dean); *Personnel Review* (Blenkinsopp); *Quantitative and Qualitative Analysis of Social Science* (Gregoriou and Ozkan); *Systemic Practice and Action Research* (Jackson); and *Systems Research and Behavioural Science* (Gregory and Zhu).

Staff have had 83 positions on international editorial and review boards of journals: Akamavi (1); Armstrong (1); Augustyn (2); Blenkinsopp (1); Bozionelos (1); Collins (3); Dahl (2); Dobson (3); Espinosa (3); Grant (7); Gregoriou (1); Hindle (1); Hudson (2); Jayawardhena (5); Jackson (7); Johnson (4); Kellie (1); Lalwani (3); Liu (1); Menachof (4); Midgley (14); Psychogios (3); Simon (2); Tsagdis (3); Vidgen (4); Wilby (1); Williams (2); and Zhu (1).

HUBS hosted 4 major international conferences in the REF period: the 55th *Annual Conference of the International Society for the Systems Sciences*; the *Humanitarian Logistics Conference*; the 2011 *Conference on Organizational Learning and Knowledge Capabilities*; and the 1st *International Conference on Supply Chain and Logistics Management*. We also ran 2 international doctoral conferences in 2013, and staff participated in numerous Organising and Program Committees of other international conferences.

101 prestigious keynote/plenary addresses have been delivered since 2008 (excluding ordinary invited papers and non-academic conferences) by Armstrong (4); Bovis (31); Cook (3); Dahl (1); Espinosa (3); Grant (3); Gregoriou (2); Gregory (2); Healy (2); Hindle (1); Jackson (2); Jayawardhena (3); Lalwani (1); Menachof (11); Midgley (10); Psychogios (3); Saxena (3); Tsagdis (4); Vidgen (2); Wilby (4); and Zhu (6).

Examples of 'best paper' prizes are Colicchia at the *Logistics Research Network Conference*, 2010; Collins at the *Management Consultancy Stream of the British Academy of Management*, 2008; Hudson at the *16th Global Finance Conference*, 2009; and Zhu at the *Critical Management Studies Stream of the Academy of Management*, 2008. Midgley won the 2013 HSSS Award for an outstanding contribution to systems research.

Selected major contributions to learned societies include: Armstrong, 2007/8 President, Management and Education Development Division of the American Academy of Management; Armstrong, Council Member, British Academy of Management; Bozionelos, Steering Committee, Careers Division, Academy of Management; Espinosa, National Representative, World Organisation of Systems and Cybernetics; Gregory, Vice President, International Federation for Systems Research; Jayawardhena: Regional Chair, North East, Academy of Marketing; Johnson, Board Member, Association of Research Centres in the Social Sciences; Midgley, 2013/14 President, International Society for the Systems Sciences; Midgley, Management Committee, Community Operational Research Network; Midgley, Executive Council, International Society for Knowledge and Systems Sciences; Wilby, 2011/12 President, International Society for the Systems Sciences; Wilby, 2012-14 President, United Kingdom Systems Society; Williams, Treasurer, UK Committee of Professors in Operational Research; and Williams, Research Members Advisory Group, Project Management Institute.