

Institution: Heriot-Watt University
Unit of Assessment: 19 Business and Management Studies
<p>a. Context</p> <p>Heriot-Watt University (HWU) has a long tradition of working closely with business and government to deliver societal benefits through research. Business and Management Studies (BMS) continues this tradition and has strong links to a wide variety of agencies in our core areas of expertise. Research in BMS is organised in nine research centres covering five strategic themes. User engagement occurs across all of these centres and themes through direct contact with a range of industry stakeholders, governments and other policy makers and through professional bodies, and extra-governmental organisations (both nationally and internationally). The University's strategic plan for 2013-18 sets out a clear research intensification agenda, involving an increase in academic staff complement, research assistants and postgraduate research students to build capacity and extend impact on the range of user groups and stakeholders listed above. Within BMS impact has been achieved on public policy and policy debates, professional practice as well as on business and economic competitiveness. The impact agenda is supported by both University and school level resources and forms part of a wider orientation to knowledge exchange. The selection of cases shows that impact ranges from relationships with individual companies to the development of industry standards and changes to government policies.</p>
<p>b. Approach to impact</p> <p>We have developed an approach to impact which has seen our research achieve significant influence by fostering close links with industry and building relationships with end users and those in policy development roles. We have formalised the support for impact with the creation of a Knowledge Exchange Director as part of the management team in BMS. Our approach to impact is further embedded through monitoring and mentoring processes and we pursue four main pathways to impact.</p> <p>Advising Government and extra-governmental bodies provides a direct link to impact on policy and policy debates. Principal examples of this type of influence are McKinnon's chairmanship of the World Economic Forum Council on Green Logistics between 2009 and 2012 (he continues as Vice Chair); he was also a member of the World Economic Forum Global Agenda Council on the Future of Transportation (2008-2010) and since 2012 has been a member of the European Commission High Level Group on Logistics set up to advise the EU Transport Commissioner on logistics issues. These appointments have facilitated the translation of research within Business and Management into direct impacts on transport logistics policy. Piecyk was invited to advise the United Nations (Economic Commission for Europe Transport Division's expert meeting on Development and Implementation of a Monitoring and Assessment Tool for CO₂ Emissions in Inland Transport to Facilitate Climate Change Mitigation) and, with McKinnon, was invited to contribute to the Scottish Parliament's Infrastructure and Capital Investment Committee's inquiries in relation to the Scottish Government's Climate Change Report on Proposals and Policies 2013-2027. Within development economics, Hare's and Schaffer's research influenced policy advice to the World Bank, IMF, European Bank for Reconstruction and Development and the EU. These international agencies provided aid to the transition economy region as it moved from centrally planned to market economies, as well as to other regions and countries. The impact of this research on policy ranges from privatisation, to trade policy, to improving the business environment in which firms operate.</p> <p>Research published by Donnelly was cited in the US House of Representatives at hearings of two subcommittees (TARP – Trouble Asset Relief Programme, Financial Services, and Bailouts of Public and Private Programs; and Capital Markets and Government-Sponsored Enterprises) on 11 May 2011 (pages 32 and 37 of http://oversight.house.gov/wp-content/uploads/2012/04/5-11-11-Subcommittee-on-TARP-Financial-Services-and-Bailouts-of-Public-and-Private-Programs-Hearing-Transcript.pdf) and 3 November 2011</p>

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(pages 8 and 18 of

<http://financialservices.house.gov/uploadedfiles/110311ratcliffe.pdf>).

Similar impacts are visible elsewhere in BMS. Marks was an advisor on the Scottish Government's Mental Health Strategy 2012-2015 and with Sang, researched Neurodiversity in the Travel and Transport Industry, funded by the Transport Salaried Staff Association, the final report of which was presented to MPs in the House of Commons in December 2012. Cairns was an invited panellist on three government commissions: Audit Scotland's Public Sector Pensions Audit; Lord Hutton's Independent Public Service Pensions Commission and the HM Treasury Discount Rate Consultation. In addition, Cairns is a member of the Index Oversight Committee of the Life and Longevity Markets Association. Turner(K) was an adviser to the European Commission Directorate General Joint Research Centre Institute for Energy and Transport, Renewable Energy Unit and is a member of a new network of experts convened by the International Energy Agency to advise on its proposed work programme on 'the Multiple Benefits of Energy Efficiency' as well as of the Roundtable on Measuring Economic Performance and Social Progress in Scotland funded by the Carnegie UK Trust and delivered in partnership with the Sustainable Development Commission, 2010-2011. These examples illustrate our commitment to ensuring our research has a direct and demonstrable influence on policy.

In addition to advising policy makers, the second pathway to impact in BMS is through **industry partnerships** to deliver impact with individual firms and industry sectors. George Davies, the retail entrepreneur, has provided over £1M of funding since 2008, generating research that feeds directly into the ethical supply chain policy of retailers, such as Schuh. The Centre for Sustainable Road Freight Transport, a partnership between HWU and the University of Cambridge, has attracted over £1.4m from commercial organisations who receive advice on the ways of making road freight economically, socially and environmentally sustainable. MacIntosh's work on change management led to funded projects within the National Health Service (NHS) during the reorganisation of NHS Greater Glasgow and Clyde (the UK's largest Health Board), and Her Majesty's Revenue and Customs (HMRC). Schaffer further developed the Stata software in ways which continue to facilitate improved econometric modelling and has impacted practice in institutions such as the World Bank over more than a decade, as well as in universities, whilst Cairns' work on interest-rate yield curves is currently being adapted and implemented by the FTSE Group in its revised British Government Securities Yield Indices. (The indices produced by FTSE are used as benchmarks by industry and have a formal role in some statutory actuarial calculations). Their research expertise has led to Cairns, McNeil and Donnelly being active in the provision of research-based CPD courses for the insurance and finance industries, further enhancing both dissemination and impact internationally, in locations ranging from Amsterdam to Zurich, as well as the UK. The Canada Pension Plan Investment Board engaged Cairns and the SCOR reinsurance company engaged McNeil as model-validation consultants, reflecting their standing as international leaders in asset modelling.

Our ability to impact on both practices and outcomes within individual firms is demonstrated by successful research collaborations with industry partners ranging from major international firms such as J. P. Morgan (Cairns), BP (Schaffer), Moody's Analytics (McNeil), Proctor and Gamble (McKinnon) to SMEs (Pointer Security, MacIntosh) and public organizations (HMRC, MacIntosh). Staff within BMS also engaged in Knowledge Transfer Partnerships (KTP). For example, the bespoke web-based transport management system developed for Caledonian Alloys (and subject of one of the impact cases returned here) helped the firm gain recognition as world class in transport management provision, far exceeding the initial project aims and increasing turnover by c£8m. This multidisciplinary project also won the 2010 KTP Scotland Award.

The third pathway to impact is **collaboration with professional and intermediary organisations**. During the assessment period, Schaffer led the production of the BP Statistical Review of World Energy. This is the leading publication of its kind, providing a comprehensive database of world energy trends, which is available to the public and is widely used by researchers around the world. Schaffer's input to the review is fundamental and the report has been described in the press as "an amazing insight to the world's consumption and production of energy" (The Guardian 9.6.10).

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More recently, Schaffer expanded his cooperation to include work on BP's Energy Outlook 2030, the company's annual projections of long-term energy trends. The Scottish Financial Risk Academy (SFRA), founded in 2010, is based at HWU and led by McNeil. SFRA received initial funding of £335K from the Scottish Funding Council and is now supported entirely from direct industry funding, with current partners including Lloyds Banking Group, Standard Life, Aberdeen Asset Management, Blackrock and Moody's Analytics. This has created a vibrant programme of Knowledge Exchange activity including six colloquia and seven specialised short courses attended by over 100 professionals and resulting in over 20 specific industry projects. In 2012, collaboration between the Institute and Faculty of Actuaries (IFoA), industry and HWU led to the creation of the Actuarial Research Centre (ARC) as the research arm of the SFRA (www.sfra.ac.uk/ARC/). Cairns is the director of the ARC, which is developing a world-leading PhD programme in actuarial science and quantitative risk management with IFoA including significant industry involvement in the supervision of all PhD students. Kleinow is an academic representative on the Life Insurance Research Committee of the IFoA. This committee reviews existing research within and outwith the UK profession and steers the future path of the life insurance research programme.

The fourth pathway to impact is through **direct public engagement** with BMS research. Staff participate in the Beltane Public Engagement Network (<http://www.beltanenetwork.org/>) (Johnson, Cobham), the Edinburgh Fringe (Johnson, Cobham), the British and Edinburgh Science Festivals (Johnson) and public debates (such as the series hosted by the Centre for Finance and Investment, which attracts an audience from across the Edinburgh financial community and beyond (<http://www.hw.ac.uk/news-events/news/centre-finance-investment-hosts-annual-debate-14264.htm>)). Further forms of direct engagement are embedded in specific research centres and projects such as the consortia supporting the Centre for Sustainable Road Freight transport which includes Tesco, John Lewis, DHL and Wincanton, along with industry partners such as Volvo, Goodyear and Firestone.

To support these four pathways to impact, BMS draws upon HWU's dedicated **Support for impact development**. HWU has a long tradition of working with industry (see also REF5). To reflect the changing research and funding environment, in 2009 the University made a major investment by matching a £2.9m ERDF award to create an holistic approach to research development, technology transfer and company engagement, significantly enhancing the traditional, existing research funding and technology transfer group (Research and Enterprise Services (RES)). As part of the initiative, which is being continued by the University, the award winning 'Crucible' programme (See section (c) of the REF5) has been further developed at institutional level enabling HWU researchers to form interdisciplinary networks with employees from industrial strategic partners, who also join the programme, and with external speakers and mentors who share their expertise. Our ECRs are actively encouraged to join the Crucible programme as a major part of their training (<http://www.hw.ac.uk/scottishcrucible/index.html>).

One particularly innovative aspect of the overall initiative has been the establishment and leadership by RES, on behalf of all the Scottish universities and research institutes, of a pan-Scotland Converge Challenge programme, funded by both public and private sources, to create market-facing entrepreneurs. Other training to enable impact is available to all staff and, through either combined or separate courses, to research students. Such support to enable impact ranges from general media skills for public engagement through mentoring and development of ECRs to create access to the kinds of professional and non-governmental bodies referred to above.

Since 2008 we have also had a dedicated Research Office for BMS based in the School of Management and Languages, the remit of which includes supporting engagement with research users. In addition, the SFRA has a dedicated Business Development Officer to support interactions with the financial community. There is also a BMS liaison officer who manages and enhances our relationship to key Scottish, UK and international stakeholders as a means of enabling impact. Finally, BMS has a Director of Knowledge Exchange to oversee the development of pathways to impact. The combination of school level and university-wide policies and resources reflects the importance of both impact and the wider knowledge exchange agenda within BMS.

Impact template (REF3a)**c. Strategy and plans**

Our strategy for impact over the next assessment cycle will further prioritise early engagement with end users in the commissioning, design and execution of research in our areas of recognised strength. Our Knowledge Exchange Director will run workshops targeted at ECR staff and PGR students to further embed a culture of research impact. Research Centres within BMS will expand both the quality and quantity of research by continuing to pursue an ambitious recruitment strategy via the institution's Global Platform policy. Impact potential will form part of the assessment for all potential appointments to BMS. As new research is commissioned, staff within Business and Management will exploit expertise available within the University's Research and Enterprise Service (RES), as well as in the dedicated local Research Office.

Screening of new research proposals by established colleagues and access to advice from RES will continue to ensure that best practices for impact are adopted throughout BMS. Specifically over the next assessment cycle:

- Research centres will provide a conduit for engagement with both end user and intermediary groups, thereby maximising impact in all future research.
- Academic staff and PGR numbers will expand by further 20% to build on the significant recruitment activities in recent years.
- New appointments and PGR scholarships will continue to be targeted on the five multidisciplinary themes where we have existing expertise.
- Specific training and further enhancement of relationships with government, professional bodies, business and other key constituencies will continue to ensure impact outcomes from high quality research in BMS.

d. Relationship to case studies

The five case studies presented reflect the diversity, reach and significance of impacts delivered within BMS. The first two cases illustrate impact on government policy. Research by the Logistics Research Centre, conducted jointly with the Transport Research Laboratory Ltd, directly influenced the government's decision in 2008 not to allow six of seven categories of longer and heavier vehicles onto UK roads. Similarly, research on 'low carbon logistics' has informed UK government policy on the environmental impact of freight transport and altered the official method used in the UK to carbon audit road freight transport operations.

The third case study demonstrates impact on the competitiveness of a specific firm, Caledonian Aerotech. Research conducted at HWU helped improve the firm's ability to manage supply chains for high value materials and helped drive growth within the firm.

The fourth and fifth cases demonstrate our ability to translate theoretical developments in econometrics into policy insights. Schaffer's work, to continue the development of the Stata software throughout the assessment period, allows economists and other researchers to assess the impact of policy initiatives. The software has been downloaded over 400,000 times in the assessment period and the fourth case describes use of additional features for IV/GMM estimation which have been used by organizations such as the World Bank. Similarly, the final impact case describes the ways in which Schaffer's research has been used by the European Bank for Reconstruction and Development and others to better evaluate the business environment in developing countries.

Taken as a set, these cases demonstrate impacts ranging from individual firm level to national and international governmental and non-governmental bodies.