



THE IMPACT OF BUSINESS SCHOOL RESEARCH: ECONOMIC AND SOCIAL BENEFITS

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INTRODUCTION

We are delighted to showcase some of the very best examples of “impact” coming from business schools across the UK. Impact is a slightly strange word, so first let me explain its meaning. Business schools in the UK produce some of the very best academic research in the world: papers written by UK business academics appear in the top peer-reviewed academic journals; books written by them are published by leading publishers; our business schools genuinely shape the intellectual frameworks used by academics to think about and understand business. The creation of original knowledge is something that UK business schools excel at. But they also excel at “impact”, taking that academic work and turning it into knowledge that is useful and used by business, government, and society more broadly. These case studies are concrete evidence of this statement. Each gives a real example of where an academic paper has formed the basis for changing and transforming business practice and/or policy, to produce tangible and significant benefits—such as higher profits, or more effective policies. In short, these case studies illustrate that UK business school academics are not tucked away in ivory towers, peering down to but never engaging with actual practice, but are actively providing solutions to real problems faced by businesses. These are great examples of original knowledge, created by UK business school academics, being applied to benefit companies and policy-makers.

We had the difficult task of selecting just 11 case studies from the very many cases of impact that we know our business schools have developed. We have selected a range of examples, across several sectors, involving both business and government, and coming from a cross-section of business schools. Our aim is not only to show fascinating examples of impact, but also to demonstrate the diversity of impact from UK business schools. Top quality research does not just take place in a small number of “research-intensive” schools; engagement with business and government is not just confined to more “practically oriented” business schools. These case studies show a far richer picture of academic research strength across the business school sector, and deep engagement with business and government in all types of business school. In that regard, these case studies represent a crucial and sometimes over-looked feature of UK business schools – that the knowledge created there has led and continues to lead to economic and social benefits. As the UK continues to look for new sources of growth, these case studies show that our business schools are critical to a thriving and successful economy.



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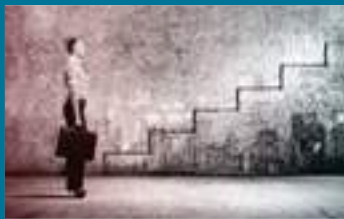
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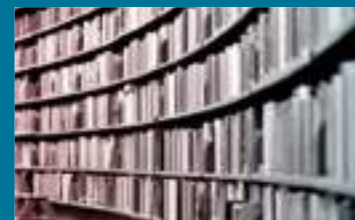
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Impact Area: Automotive Industry

NEW SUSTAINABLE BUSINESS MODEL FOR LOW-VOLUME CAR MANUFACTURING

Institution: Cardiff University Business School

Leading Academics: Paul Nieuwenhuis and Peter Wells

Introduction

Mass car production is the world's largest manufacturing sector, yet its historical development is poorly understood. Research undertaken by Cardiff Business School's Paul Nieuwenhuis and Peter Wells has addressed this gap in industry knowledge, leading to a new understanding of the nature of economies of scale in the automotive industry. As a result it is now understood, particularly in Europe and North America, how low-volume car manufacturing can be economically feasible, while mass car production profitability is under pressure. Building on this knowledge, a new business model for more sustainable low-volume car making, Micro Factory Retailing (MFR), was developed. This model has benefited a number of low volume UK car makers – e.g. Morgan, Gordon Murray, and Axon – as well as car manufacturers elsewhere, including Local Motors in the US.

Underpinning research

Research focused on two areas: a reassessment of the historical development of mass car production and new business models. Through engaged scholarship with industry – involving Alcan, Corus and GE Plastics, amongst others – the research identified the importance of the all-steel body in the economics of mass car manufacturing. Historical research led to an appreciation of the importance of the work of Edward G. Budd to the innovations that introduced this technology. For example, Henry Ford, seen hitherto as the father of mass car production, was unable to mass-produce car bodies for the Model T. Budd's innovations allowed the mass production, for the first time, of complete cars, albeit at a very high investment cost which came to determine the economics of mass car manufacturing. Thus 'Buddism' was coined for the current mass manufacturing model, a term which is gaining increasing currency. Later work on this theme was carried out from 2001 and focused particularly on the US and France where manufacturers such as Dodge and Citroën pioneered these technologies enabling the spread of this paradigm. Publications in 1997 and 2003 led to a series of invitations to speak on this new understanding at industry conferences, while a number of academic conference papers started the dissemination among academics.

Alongside new understandings of the historical development of mass car production, new insights were also developed into the economics of low volume car production. Early beneficiaries of these new insights include the Morgan Motor Company, which had been categorised as operating an unviable business model by consultants, being steeped in mass production but lacking the insights contributed by our work. Parallel work on business sustainability combined with this new understanding of the economics of low-volume car production then led to the development of a new business model for this method of manufacturing.

Benefits and impacts Instrumental impact

This Micro Factory Retailing (MFR) concept shows how an integrated business model, combining assembly – based on post-Budd modular car concepts – with retail, service, repair and upgrading, can enhance customer-focus and market responsiveness. Additional advantages are:

- Eliminates waste and over-production, making it more sustainable both economically and environmentally
- Lower overall costs
- Provides greater job content and enhanced employment, greater integration in local economies,
- Reduces impacts of plant closures, rendering it more socially sustainable

This latter aspect of the research has had considerable impact on the work of Gordon Murray Design (GMD), a design and engineering consultancy led by its former McLaren Formula 1 designer namesake. GMD has developed a light-weight more sustainable concept car, the T25, and an electric version, the T27, currently the most efficient electric vehicle in the UK. This car is linked with a business model that draws heavily on the MFR concept, and Nieuwenhuis and Wells were invited to join GMD's external advisory committee in 2010.

The 'Buddist' model was particularly appealing to low volume car manufacturers, with the Morgan Motor Company being a notable beneficiary of the insights of Nieuwenhuis and Wells' work.

Impact Area: Business Innovation Processes and Gender Equality

INCREASING GENDER DIVERSITY IN THE BOARDROOM BY INFLUENCING NATIONAL POLICY

Institution: Cranfield University School of Management

Leading Academic: Professor Susan Vinnicombe

Introduction

The International Centre for Women Leaders at Cranfield School of Management is committed to helping organisations to develop the next generation of leaders from the widest possible pool of talent. The Centre is unique in focusing its research, management development and writing on gender diversity at leadership level. Our Female FTSE work is endorsed at the highest level of government.

It is widely recognised that there is a gender imbalance at senior management/leadership level. The Centre aims first to understand the issues facing senior women managers, and second the impact of organisational and personal factors on women's managerial careers. Research findings then inform the Centre's management development activities.



Key Benefits:

Our research highlights the business case for women on boards, as well as seeking a better understanding of the reasons for lack of progress. We work closely with politicians and organisations such as FTSE-listed companies and leading professional service firms, the Department for Business, Innovation & Skills, Government Equalities Office, Equality & Human Commission, Department for Trade & Industry, Institute of Directors, and Opportunity Now. We participate actively in a "think-tank" of women-in-leadership professors and practitioners around the world.

Our research is distinctive in three key respects:

- A focus on gender and leadership at the highest organisational levels, seeking an understanding of why the barriers to women directors are so persistent.
- Direct relevance to management practice and policy-makers. By developing research partnerships, we ensure that research results are relevant to practitioners as well as leading the academic debate in the field.
- We invariably study both female and male managers, so that meaningful comparisons can be made.

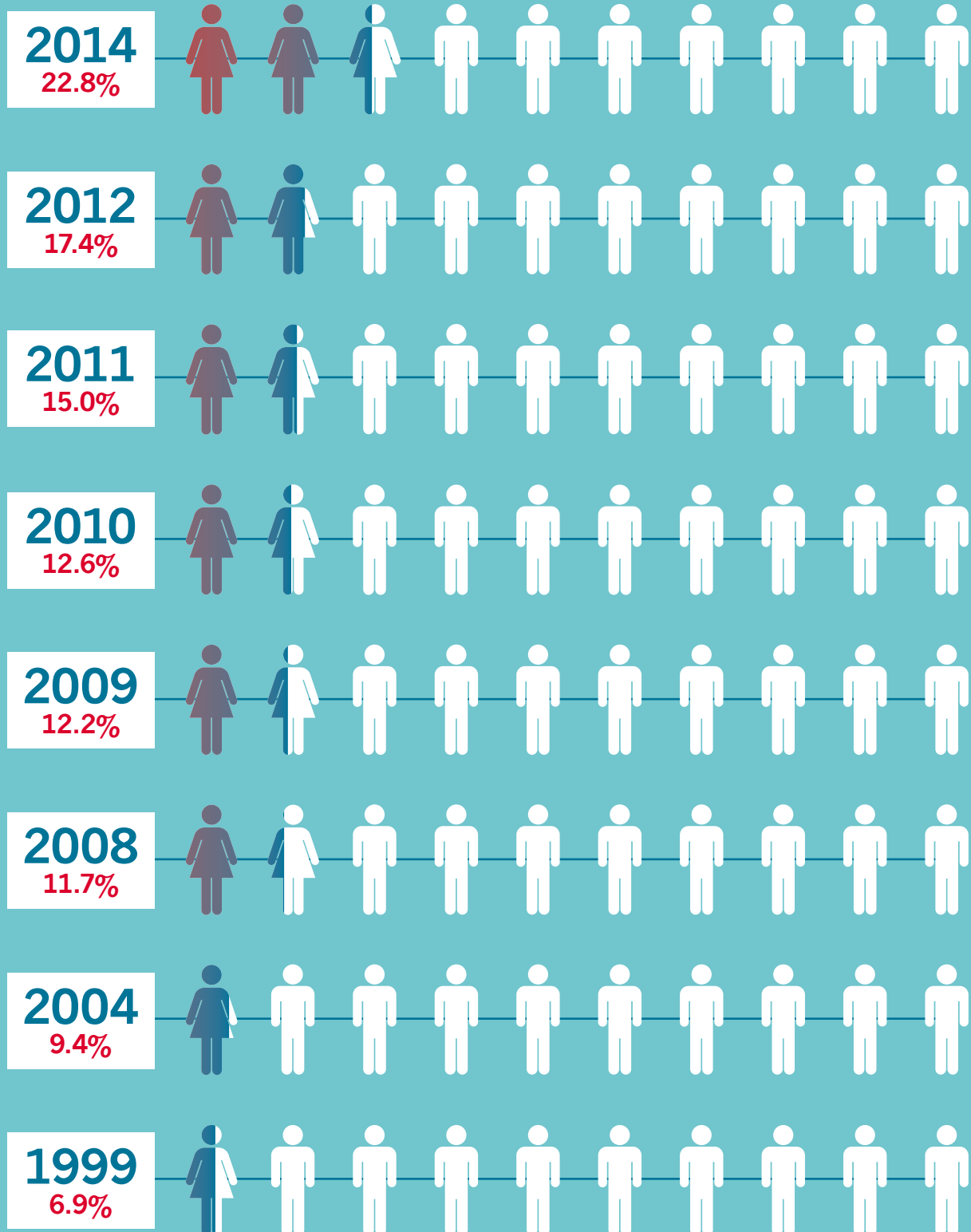
Benefits and impact Instrumental impact

Since 1999, our annual Female FTSE benchmarking report has provided a regular measure of the number of women executive directors on the corporate boards of the UK's top 100 companies.

Sponsored by UK Government and industry and launched by a Government minister, The Female FTSE Index attracts considerable press attention in the UK and internationally. The credibility and authority of the report is widely recognised by leading companies (e.g. PriceWaterhouseCoopers, Ernst & Young, Barclays, Lloyds Banking Group) and governments internationally (e.g. Australia, New Zealand), and provides the data for the UK Office of National Statistics' Women on Boards figures. The study was hosted at the Chancellor of the Exchequer's offices at No. 11 Downing Street in 2004. Reports are available from 2001 onwards. The Index is incorporated in the Reports.

The most significant impact of the Female FTSE research has been through extensive contribution to the Davies Report in 2011, which recommended diversity targets of 25% by 2015 and 30% by 2020. Consequently, the proportion of female board directors on FTSE 100 companies increased from 12.6% in 2010 to 17.4% in 2012. Since the Davies Report recommendations, the Centre has also produced interim reports. The latest Women on Boards progress report (November 2014), reveals significant progress towards the Davies targets, with the proportion of female board members in the FTSE 100 having reached 22.8%.

PERCENTAGE OF WOMEN DIRECTORS IN FTSE 100 COMPANIES, 1999-2014





Impact Area: Defence Industry

PERFORMANCE PARTNERING ON THE ASTUTE SUBMARINE PROGRAMME

Institution: Birmingham Business School

Leading Academic: Dr Joe Sanderson

Introduction

The research underpinning this impact case was a £147,000 UK Government (Department for Trade and Industry) funded project entitled 'Competitive Success through Supply Chain Performance Improvement'.

Dr Joe Sanderson was the principal investigator.

The research involved four main collaborating companies in UK naval shipbuilding: BAE Systems (Marine), VT Shipbuilding, Truflo Marine and Fleet Support. Each of the companies identified a particular supply chain for analysis.

The key insight of this research is that the scope for a buyer to engage a supplier in a collaborative effort to improve its performance is a function of the supplier's willingness/incentive to undertake the necessary performance improvement actions. This was an important issue for BAE Systems because it was under pressure from its customer, the Ministry of Defence (MoD), to keep costs on the Astute submarine programme under control while ensuring that quality and innovation were not compromised. BAE Systems had not historically engaged in collaborative supply chain management initiatives, but saw this research as an opportunity to explore the potential of such supplier collaboration as a way of delivering what the MoD wanted.

The research investigated how the power structures underpinning particular buyer-supplier relationships affected the supplier's willingness to collaborate, and the effects of any such collaboration on the performance of the supplier. The evidence suggested that effective collaboration, leading to performance improvement, was most likely in circumstances either of buyer dominance or buyer-supplier interdependence. In the former circumstance the buying organisation was able to insist on supplier involvement in a collaborative initiative. In the latter, collaborative efforts made sense given the heavy dependence on each party on the other and the lack, therefore, of competitive market pressure to drive performance improvement. The evidence also suggested that effective collaboration was much less likely in circumstances either of supplier dominance or buyer-supplier independence. In the former situation the supplier was able to dictate the terms of its relationship with the buyer, while in the latter it did not make commercial sense for either party to forgo the freedom to switch by incurring the significant sunk costs associated with collaboration.

Benefits and impacts

Instrumental impact

The impact was achieved through the collaborative relationship developed with the companies during the research. The findings of the research were initially disseminated into the collaborating companies and user community through a series of four workshops led by Dr Sanderson. The findings and underpinning analysis were also written up and disseminated to the collaborating companies. The industry trade body, the Shipbuilding and Ship-Repair Association, also ensured wider dissemination of the findings through its publications and website.

Subsequently, Dr Sanderson was invited to visit BAE Systems to assist members of their procurement and supply management function in understanding how the methodologies used in the DTI-funded research could be adopted more widely to model and evaluate performance improvement opportunities in other supply chains. He was also asked to give advice on how best to handle vulnerable sources of supply involved in providing critical components to the Astute submarine programme. Through the research findings and these subsequent interactions, those responsible for procurement and supply management on the Astute programme recognised that their short-term, boat-by-boat, approach to awarding contracts was making BAE Systems an unattractive, and therefore commercially weaker, customer in the eyes of many of its suppliers. Consequently, the scope to achieve cost control, enhanced quality and technical improvement was being limited and supplier performance was suffering.

Impact is most clearly demonstrated by the radical change to the management of key suppliers on the Astute programme through the introduction of longer-term (multi-boat) contracts called Performance Partnering Arrangements (PPA). Rather than being awarded a contract for one single boat, suppliers receive a commitment for the duration of the class of boat. In return they are expected to achieve a series of challenging quality, cost reduction and technical innovation targets. There are various publicly available accounts of the use of PPA by BAE Systems on the Astute and other submarine programmes, for example with Thales UK (March 2009), AMETEK SCP (March 2009), Babcock (March 2012) and Northrop Grumman (July 2012).

Impact Area: Economic Performance and Sustainable Growth

THE ROLE OF WOMEN ENTREPRENEURS IN UK ECONOMIC DEVELOPMENT

Institution: Strathclyde Business School

Leading Academics: Professor Sara Carter and Professor Eleanor Shaw

Introduction

This research demonstrates that women entrepreneurs make important contributions to economic development, but are disadvantaged by initial under-capitalisation. Working with UK and devolved governments, leading banks and finance institutions, and regional enterprise support organisations, this research influenced policy debates; shaped women's enterprise policy; improved understanding of factors underpinning access to finance for diverse enterprises; and influenced the work of business support organisations and commercial banks.

Key findings

In the UK, an additional 150,000 businesses would be created if rates of women's business ownership equaled those of men and an additional 900,000 if UK rates equaled those in the US. In Scotland, if women's rates rivaled those of men, an additional 108,480 businesses and a 5.3% growth in the size of the Scottish economy would be achieved. The relative under-capitalisation of women's businesses can be explained by demand and supply-side factors: the expectations of women entrepreneurs, combined with bank loan officers' perceptions of women entrepreneurs, influence loan decisions. Unexpectedly, differences were found between male and female bank loan officers, with women having less-effective personal networks for introducing new business applications and weaker internal communications with credit controllers.

The research demonstrated the benefits of ensuring women have sufficient capital to start and sustain business, and recommended changes in the training of bank staff, business advisers and women entrepreneurs.

Benefits and impacts

Instrumental impact

The research highlighted the economic significance of women business owners and became widely accepted in policy circles where its findings stimulated debate and influenced policy.

Impact on UK government policy started during the Labour administration and continued during the Coalition administration. Carter and Shaw engaged in meetings, seminars and private briefings with:

- BIS
- A 10 Downing Street seminar chaired by PM Gordon Brown
- John Hutton, then Secretary of State for Business, Enterprise & Regulatory Reform, and Stephen Timms, then Minister for Small Firms
- Geoffrey Norris, Head of the Downing Street Policy Unit
- Lord Davies, then Minister of Small Firms at BIS

Carter's membership of the UK Government's Women's Enterprise Task Force (WETF) and chairing of the Swedish Presidency Workshop at the EU Conference "From the European Charter for Small Enterprises to the Small Business Act", provided opportunities for further policy impact. Carter chaired the Women in Enterprise Commission at the Scottish Government / STUC Women's Employment Summit, was subsequently appointed to the Scottish Government's Strategic Group on Women and Work, and chaired a series of workshops on women in enterprise. The Scottish Government's Draft Framework and Action Plan, co-written by Carter, included key ideas and activities identified from these workshops. Recommendations were incorporated into the Scottish Government's Enterprise Strategy.

Carter and Shaw established strong relationships with senior bank staff in the UK and internationally. This engagement included: Carter's membership of the Global Banking Alliance Advisory Board (2007-2009); Shaw's chairing of events for Independent Women, a wealth management consultancy, and membership of the Impact & Innovation Committee of Foundation Scotland; and Carter's Board Directorship of Women's Enterprise Scotland and work with RBS in its Supporting Diversity initiatives.

The need to focus on women's enterprise, including access to finance, was recognised within the UK Enterprise Strategy (2008) and WETF Final Report (2009); formed a central pillar of work identified within the WETF and was the subject of a bank and policy-makers roundtable expert discussion at HSBC's Head Office. The WETF successfully lobbied for a £12million co-investment fund for women. Through the Enterprise Research Centre, Carter (with Monder Ram, Birmingham) currently leads the Diversity & SMEs work-package which aims to develop innovative approaches to improving access to finance opportunities across diverse groups.





Impact Area: Employment Relations and Human Resource Management

WORKING WITH ACAS – INFORMING ADVICE, POLICY AND GUIDANCE

Institution: Lancashire Business School

Leading Academics: Dr Richard Saundry and Dr Ian Ashman

Introduction

Researchers within the Institute for Research into Organisations, Work and Employment (iROWE) at the Lancashire Business School (University of Central Lancashire) have worked with policy-makers at the Advisory, Conciliation and Arbitration Service (Acas) to provide new evidence in the areas of conflict management and downsizing. This research has been financed by grants from Acas and the ESRC. The results inform the work of Acas, which plays a pivotal role in shaping British employment relations and has had a significant impact on both wider practice and policy. These impacts were sustained through the co-ordination of an ESRC seminar series 'reframing resolution', co-sponsored by Acas.

Key benefits

The research has been undertaken in an economic and political context in which issues of workplace conflict resolution and downsizing have been central to public policy concerns. This has included a range of consultations over the UK system of dispute resolution and redundancy. A number of themes generated by the research resonate with public policy priorities, particularly the potential for mediation to facilitate dispute resolution and transform employment relations, and also the capacity of managers to handle difficult issues such as downsizing, grievance and discipline.

Benefits and impact

Instrumental impact

The research has played an important role in shaping the strategic direction of Acas and has resulted in the new Acas strategic plan being reformulated to emphasise the importance of promoting conflict management alongside their longstanding mission to improve dispute resolution. In the longer term, this will affect the way in which Acas delivers its services, advises key stakeholders (including government) and trains its staff.

iROWE research has resulted in new and revised guidance published by Acas. Dr Ian Ashman's work on downsizing was integrated into a new guidance booklet on redundancy handling for managers (Acas 2012). The work led by Dr Richard Saundry informed the development of new guidance provided on 'Representation at Work' (Acas, 2010:18) and was used to highlight the positive role played

by representatives in disciplinary and grievance hearings. In addition, research into the role of unions in workplace mediation (Saundry et al., 2013) informed the development of 'Mediation – a guide for trade union representatives' which was launched at the 2010 TUC Congress. Saundry and colleagues' programme of research into workplace mediation was also widely cited in the reformulated guide to workplace mediation produced by Acas and the CIPD in February 2013.

The research has informed the development of policy. An Acas Policy Discussion Paper 'The Future of Workplace Relations' (Podro 2011), cited iROWE research to suggest that tensions between the approaches of line managers and HR practitioners could undermine informal dispute resolution, and also highlighted the role of mediation in improved workplace relations. Consequently, this informed the Acas response to the government's consultation on 'Resolving Workplace Disputes' (Acas 2011). iROWE research was also cited by the government in the response to consultations over the use of contributory no fault dismissal for micro businesses (BIS, 2012) as evidence that changes would increase uncertainty for SMEs and could have the impact of undermining employee engagement. Most recently research into the participants' experience of mediation has been cited in advice provided to the Australian Fair Work Commission in relation to the implementation of mediation in bullying and harassment cases.

Ashman's work has been important in informing the Acas response to changing government policy in relation to redundancy consultation. The Acas response to the government's call for evidence on this matter was contained in a letter dated 31st January 2012. On 6 April 2013, new government legislation came into effect relating to redundancy consultation. Acas were asked by the government to accompany these changes with new guidance for managers and organisations to 'to help employers understand their legal obligations and sets out the principles and behaviours behind a good quality consultation to help employers manage collective redundancies more effectively.'

The work led by Ashman and Saundry has raised awareness, informed practice and garnered considerable coverage across a variety of major media outlets.

Impact Area: Green Economy

ACHIEVING ECONOMIC AND ENVIRONMENTAL IMPROVEMENTS IN ORGANISATIONS THROUGH LOW CARBON SUPPLY CHAIN RESOURCE MODELLING

Institution: Sheffield University Management School

Leading Academics: Professor Lenny Koh, Professor John Cullen, Professor Mehmet Demirbag et al

Introduction

Research within Sheffield University Management School into supply chain management and carbon reduction has delivered economic and environmental impact by helping businesses reduce their carbon footprint through lower-cost resource efficiencies.



The Supply Chain Environmental Analysis Tool, SCEnAT, was developed from research and has helped businesses worldwide change their operations to reduce CO₂ emissions, make cost savings of up to £250,000 per company, and improve their business performance through – in one case – winning contracts worth £1.75million.

The research has also been used by regional business organisations in developing and implementing growth strategies to support low carbon businesses in Yorkshire and Humber.

Underpinning research

External pressures on organisations has created an imperative for combined low carbon, low-cost operational and organisational solutions. In response a team from Sheffield University Management School, run since 2005 by Professor Lenny Koh, has researched and tested theories and methodologies to develop a supply chain resource modelling system to help organisations maximise efficiency and reduce carbon footprints.

In response to user needs and working with international collaborators, the group undertook new research on green supply chain theory through the study of supply chains in Europe and Asia. They established the need for a comprehensive decision support system for carbon management across the supply chain.

The group advanced theory by advocating a balanced whole supply chain system approach to improve both the understanding of, and decision making for, carbon accounting across global supply chains. This applied methodologies to identify areas of greater risk and uncertainty for carbon reduction in the supply chain.

In 2010 Professor Koh led a two-year collaboration, which developed a decision support tool to help organisations identify areas of high carbon usage and select lowest-cost interventions to address them. This was the crucial point where theory was brought to practice.

The project aimed to design a system that could integrate different techniques and methods of supply chain mapping and carbon accounting, suggesting interventions that would reduce carbon footprint whilst improving efficiency. Our team developed methodologies for mapping supply chains; tracing components, revealing materials and energy usage at each level, and manufacturing processes and logistical operations within and between each company.

The Sheffield team then developed software based on the relationships identified that can be applied to reveal the points of highest carbon consumption and interventions that have the most cost-effective impact on the carbon footprint.



Benefits and impact

Instrumental impact

- Our research into supply chain resource modelling has had economic and environmental impact, helping businesses adapt operations to achieve carbon-reduction targets, whilst reducing costs.
- It has also influenced regional and national business development strategy.
- The team worked with the Sheffield City Region Local Enterprise Partnership and the Sheffield Chamber of Commerce and Industry.
- The major output of the Low Carbon Supply Chain Project, led by our team, was SCEnAT which launched in 2011. It is online (www.scenat.com), making it easy and free to companies to access. Recently, the software has been extended as a demonstration Cloud computing platform, which permits remote usage and use of simulation data.
- The project team has worked with a business advisory group and with regional Chambers of Commerce to disseminate the research findings and SCEnAT to a wide network of SMEs. Six companies have used the tool to date, and our team has worked with one of them to develop a 'spin off' carbon calculator specifically aimed at the agricultural sector.
- A key benefit for the organisations has been the ability to identify, assess and trace energy usage and carbon emissions at every step in their product's production process. Four companies have already implemented organisational changes.
- The businesses that have used SCEnAT have benefitted from a reduction in their carbon footprint and supply chain cost savings due to interventions recommended by the model. For example, Sheffield Forgemasters' director of operations believes that the work has helped them to introduce initiatives that have contributed to a reduction in their CO₂ emissions to 38 per cent below the Government's benchmark. This is helping them to reduce green taxes which cost the company £1.25million per annum.



Impact Area: Innovation in SMEs

EVOLUTION OF BUSINESS KNOWLEDGE HELPS SMEs

Institutions: Leeds University Business School & University of Liverpool
Leading Academics: Professor Richard Thorpe and Professor Ossie Jones

Introduction

Research led by Professor Richard Thorpe and Ossie Jones on management learning and leadership in small and medium-sized enterprises (SMEs) has benefitted three groups: (i) business education providers (universities, colleges and training organisations), who have used the research to improve the training and education they provide for SMEs; (ii) SME owner-managers who have been able to build on their entrepreneurial behaviour and improve their strategic planning through tailored business training programmes; and (iii) government, regional and sector policymakers, who have used the research in policies designed to generate growth in SMEs.

Our research

It is already well-known that many business owner-managers do not value traditional approaches to learning, seeing it as “textbook” knowledge. Research within the Centre for Technology, Innovation and Engagement (C-TIE) at the University of Leeds, and colleagues in the Enterprise Centre at Manchester Metropolitan University, examined how managers acquire knowledge and identified ways they can more effectively learn, and by doing so, significantly enhance the performance of their business.

The Evolution of Business Knowledge (EBK) ESRC-funded programme found that knowledge can be implicitly transferred through various mechanisms, including business networks, supply chains and professional advisors, and embedded in work practices and systems. Parallel streams of research addressed the way managers learn particularly through methods of peer learning and an action focus.

The outcomes of the EBK research became part of the of the ‘Northern Way’, the Northern Leadership Academy (NLA) - a collaboration between the business school and schools of management at Lancaster, Leeds and Liverpool. One of the foci of the NLA was SME development and when it continued into its second phase this aspect became central. The NLA also took a distributed approach to SME development, delivering programmes through a network of Higher Education Institutions, as well as colleges and centres. These centres delivered leadership courses based on principles of good practice delivery which the research indicated are effective for the support and development of SMEs and adopted a ‘journeys’ approach, one which developed as their horizons broadened. This experience formed a platform from which a number of SME leadership/business-growth programmes

were delivered collaboratively across the north, and in part, it was the approach and infrastructure that attracted Goldman Sachs to launch their first pilot for the *10,000 Small Businesses* programme at Leeds.

Benefits and impacts Instrumental impact

In 2010, Leeds University Business School (LUBS) launched the first Goldman Sachs *10,000 Small Businesses* programme in the UK, which provided high-quality, practical support to the leaders of established enterprises. Seven cohorts (164 businesses) had completed the programme by July 2013. In 2011/12 the programme was rolled-out to other areas of the UK (Manchester, Birmingham, London), with specific support delivered by LUBS to Manchester and Aston Universities.

The Goldman Sachs programme was an award winning entry in the European Foundation for Management Development’s Excellence in Practice Awards 2012. The programme has been evaluated to indicate that as well as expressing greater confidence in growing their businesses, SME owner-managers on the programme have average net employment growth of +23% in their businesses (compared to -1% for UK Small Businesses) and an average revenue growth of +16% (compared to -9% for UK Small Businesses).

Regional and national policy on SME support

The research has been used by policymakers enabling them to identify new opportunities to stimulate SME growth and benefit the economy. Having met with David Willetts MP, Minister for Universities and Science, Thorpe was invited to join the BIS Mid-Sized Businesses’ Task Force, chaired by Sue Cox, which focused on how business schools might best support medium sized firms so they could more effectively contribute to a growth-led recovery.

Thorpe also met with Sir Andrew Witty’s team (July 2013) who were taking evidence for an Association of Business Schools’ (ABS) report (authored by Thorpe and Rawlinson of Booz & Co) for the Independent Review of innovative practice and engagement within business schools. One aspect of the report focused on business schools’ relationships to SMEs. Preparation of the ABS report led David Willetts MP to connect the business school innovation initiative to Lord Young’s Enterprise initiative and this led directly to the Association of Business Schools becoming involved in developing the Small Business Charter initiative.

Impact Area: Maritime Industry

SUSTAINABLE ENVIRONMENTAL MANAGEMENT IN SMALLER PORTS

Institution: Plymouth University Business School

Leading Academics: Professor John Dinwoodie, Dr Sarah Tuck
and Dr James Benhin

Introduction

Environmental regulations threaten commercial operations in many smaller ports. This impact case study profiles research to build the capacity of smaller ports to perform economically and grow more sustainably through interfacing the knowledge and skills of social scientists with managers. Research empowered Falmouth Harbour Commissioners (FHC) to ensure sustainable anchoring, bunkering and ballast water exchange operations in Falmouth Bay by redefining environmental management as a business process and transforming stakeholder management.

This research was based on a Knowledge Transfer Partnership award (KTP007098) funded by Economic and Social Research Council (ESRC), the Natural Environment Research Council (NERC) and Falmouth Harbour Commissioners (FHC). This facilitated the appointment of a Marine Sustainable Developments Officer (MSDO) who developed a Port Sustainability Management System (PSMS) and stakeholder management framework to ensure systematic collation and analysis of fragmented data. This partnership ensured sustainable operations and safeguarded commercial revenue streams, helping to create two new jobs for marine pilots. A later CUC-ESF studentship award (ESF11200NCO5) investigated processes which underpin implementation in Europe's largest port industry.

This research has been undertaken by Professor John Dinwoodie, Dr Sarah Tuck and Dr James Benhin of Plymouth University. Professor John Dinwoodie specialises in maritime logistics and his research interests include port management and sustainable environmental management. Sarah Tuck is a specialist in maritime business with interests in small ports and stakeholder engagement. James Benhin specialises in environmental economics and investigated the regional economic impacts of maritime operations. Research in marine sustainability has typically featured particular scientific

processes and environmental sustainability initiatives have focused on larger ports. Popular methodologies which aim to build quantitative models concerned with port efficiency or competitiveness have limited relevance for smaller ports. Our research initially deployed a case study strategy to investigate the processes of environmental management. FHC oversee maritime operations in a very environmentally sensitive setting, within a business context which incorporates the UK's largest offshore marine bunkering operation. Within Falmouth Bay routine maritime operations include anchoring and bunkering. The impacts on specialist habitats have rarely been reported.

Benefits and impacts Instrumental Impact

- Research prompted wider dissemination of more information spanning corporate social responsibilities and sustainability doubling the value of editorial coverage, creation of a stakeholder management system, and inter-port meetings to discuss best practice.
- The MSDO role, now commercially funded and embedded within FHC, provides specialist advice and information which reduces external consultancy fees, increases publicity, reduces advertising costs, enhances stakeholder contact, constructive relationships with environmental interest groups, disseminates specialist environmental awareness training and materials for harbour users and guide students.
- The Port Sustainability Management System (PSMS) clarified understanding and documentation of management processes and empowered FHC to ensure compliance, engage proactively with legislators and environmental interest groups, and contribute to good practice.
- The PSMS is being further used to investigate implementation issues throughout smaller ports in Cornwall and Devon.





Impact Area: Pharmaceutical Industry and Health Sector

COST-EFFECTIVENESS OF A GENDER-NEUTRAL VACCINATION AGAINST HUMAN PAPILLOMA VIRUS (HPV)

Institution: Kingston University Business School

Leading Academic: Professor Giampiero Favato

Introduction

Research by Kingston University established that it is cost-effective to vaccinate males against the Human Papilloma Virus (HPV virus), overturning the outcome of previous studies and policies. HPV is the name for a group of viruses that commonly affect the moist membranes of the body. High-risk strains of HPV can cause cervical cancer. Around 3,000 new cases are diagnosed each year in the UK, which is equal to more than 8 women every day, of which 2 will eventually die. High-risk HPV infection can also lead to cancer of the anus (1,100 new cases per year) or penis (500 new cases) in men.

Since 2008, the NHS has been focusing on a single group of individuals (a cohort) to prevent HPV-induced malignancies, by offering free vaccination to all girls aged 12-13.

In 2010, Professor Giampiero Favato joined a multi-disciplinary research programme (BEST), aimed to demonstrate the cost-effectiveness of a gender-neutral HPV vaccination programme including more than a single group of individuals, defined as multiple-cohort strategy. Favato's contribution was to develop his earlier Markov simulation research into a more sophisticated Bayesian model, which then formed the core economic modelling of the cost-benefit of the HPV research programme. A secondary objective of the research was to measure the Economic Value of Information (EVI), a parameter in decision analysis which tests the robustness of results by taking into account several dimensions of uncertainty. Inputs to the model were related to Italian clinical and cost data.

The BEST study concluded that a gender neutral vaccination that includes both girls and boys aged 12 years is cost-effective, as a result of the increased clinical benefits from herd immunity. Herd immunity occurs when a critical portion of a community is immunised against a contagious disease and the spread of the disease is contained. When the combined clinical benefits for both sexes were considered, the costs per QALY (Quality Adjusted Life Years) gained were below the established cost thresholds.

Benefits and impact

Instrumental impact

In particular, the research showed the following benefits of gender-neutral vaccination:

- **Health benefits of vaccination occur faster.** The clinical benefits of vaccination are expected to occur 3.8 years earlier with gender-neutral vaccination.
- **Reduced health care costs.** The two-cohort strategy results in a mean net reduction in cost of €80 million to the Italian government (95% CI, h40.1–h144.7 million) as a result of the prevention of HPV-related diseases.
- **Reduced uncertainty.** The EVI presented in the research (<€13 per patient) implies that the uncertainty that is currently present in the model parameters has a very limited impact and is more robust than previous models. This research was presented to the Italian Agency for Drug Approval (AIFA). As a result, AIFA lifted its previous restriction of vaccination to females only and approved vaccination for males.

In November 2012, Emilia-Romagna and Sicily regions introduced voluntary vaccination programmes for males under 26, with economic benefits amounting to €98.9 million. In addition, Emilia-Romagna undertook the immunisation of HIV-infected males aged up to 26 years old living in the region. This programme provides immunisation benefits to a high-risk sub-population at a relatively modest incremental total cost of €40,273 per year. The economic benefits of this policy change were estimated in collaboration with AIFA.

Based on similar health-economic evidences, gender-neutral vaccination has been recommended also in the USA, Canada, Austria, and Australia. This policy change is contributing to pressure on the NHS to extend vaccination to all adolescent boys in the UK. Aligned to the findings of the BEST study, the Royal Society for Public Health is calling for all boys aged 12 to 13 to be offered the vaccine, in order to accelerate the protective effect of herd immunity. The Joint Committee on Vaccination and Immunisation, which advises the British Government on national immunisation strategies, noted that "alternative prevention strategies such as universal male vaccination should be evaluated".

Impact Area: Social Enterprise

SOCIAL ENTERPRISE GROWTH AND DEVELOPMENT

Institution: Middlesex University Business School

Leading Academic: Professor Fergus Lyon

Introduction

There has been a growing interest in the concept of social enterprise; that is organisations that are trading but with a social purpose. The research undertaken by the Centre for Enterprise and Economic Development Research (CEEDR) in Middlesex University's Business School has influenced government policies in a range of UK national departments, as well as the Scottish Government, to support social enterprises. Research findings have influenced how government measures the size of the social enterprise sector and the supply of social investment funds. Research findings have also fed into strategy documents of the Cabinet Office and supported the development of Big Society Capital, stimulating significant growth of individual social enterprises.

Underpinning research

Research on the process of start-up and growth of social enterprise explored the capabilities and contextual factors that shape how social enterprises develop. Other research examined the particular types of support and finance required for the development of social, innovation and scaling impact. Findings have provided insights into the scale and scope of social enterprise activity which have informed further mapping exercises around the world (including Australia, Canada and Israel). This research has been published in the International Journal of Management Reviews, European Urban and Regional Studies, Organization Studies, International Small Business Journal, Environment and Planning C, Journal of Social Entrepreneurship, and Social Enterprise Journal.

Building on this social enterprise research tradition, MU led the £1.3 million, ESRC funded Social Enterprise Research Capacity Building Cluster and the social enterprise stream of the Third Sector Research Centre (TSRC) (led by the University of Birmingham), a £10m, 6 year funded Programme (ESRC, Cabinet Office - Office for Civil Society, and Barrow Cadbury Trust). This has supported a programme of research into issues of growth, ethnic minority involvement and mapping the scale of the social enterprise sector.

Benefits and impacts

Instrumental impact

Evidence on social enterprise support needs fed into key policy documents with papers referenced in Briefing Paper (unpublished, 2009) for the Prime Minister's Office

on 'Staff Led Enterprises and the NHS' and in 'Scottish Government Social Research Support for Social Enterprise Start-ups'. Fergus Lyon was invited to speak at the Houses of Parliament to Ministers and senior MPs in the All Parliamentary Party Group on Social Enterprise. Research on the scale of the social enterprise sector in the UK challenged figures widely used in policy documents and ministerial speeches. Following our briefings and coverage in a range of media and influential blogs, these figures were removed from government documents. Middlesex University (MU) is now advising policy makers in the Cabinet Office and Office of National Statistics on future measurement.

Policy influence was developed through a series of invitations to brief policy makers and at the Cabinet Office's Office for Civil Society (6 events), Department of Health (2 events), Communities and Local Government (3 events), Business Innovation and Skills with the Office of National Statistics, the Foreign and Commonwealth Office (Embassy in China), Big Lottery Fund, and European Commission (DG Employment, Social Affairs and Inclusion). MU research influenced the development of the social investment infrastructure, particularly Big Society Capital, and the associated policy makers in the Cabinet Office who have referenced MU research. There has also been interaction with Local Authorities, with training courses to over 160 local authority officials and councillors and specific advice to councillors in Stevenage (2010-13) and commissioners in Camden (2013).

Impact on social enterprises

Research on the operations, management and governance of social enterprises gave insights into the strategies for growth. The frameworks for understanding approaches to growth developed in the research were used by organisations when deciding on their strategy. Existing and ongoing social enterprise research led to a Knowledge Transfer Partnership (KTP) with the London Early Years Foundation (LEYF), looking at social enterprise models for early years' provision (2010-2011). This KTP activity led to the development of a growth, social franchising and networking strategy. LEYF has related this research to their growth of 30% (to 24 nurseries and an extra 200 places with a focus in deprived areas) and the raising of over £100,000 investment. LEYF stated that the system put in place by the KTP allowed the growth to take place at a faster scale while ensuring quality was not affected.





*the image used does not imply corruption occurred at this match

Impact Area: Sports Business

SPORTS INTEGRITY

Institution: Salford Business School

Leading Academics: Dr David Forrest, Dr Ian McHale and Dr Rob Simmons

Introduction

Dr David Forrest, Professor of Economics; Dr Ian McHale, Reader in Statistics; and Dr Rob Simmons, Senior Lecturer in Economics, of the Centre for Sports Business at Salford Business School have made important contributions in sports business and gambling economics over many years. This positions them as world leading experts on sports integrity.

In particular, Forrest and Simmons (2003) explored the growth of sports betting and the consequent public-policy issues. They argued that while sport may extract revenue from betting, there are also costs resulting from corruption. They discuss where the risk of corruption is highest and how this risk might be mitigated by sports governing bodies and government. Later work by Forrest, McHale and Simmons on betting markets provided an understanding of how betting markets function.

This in turn led to a profound understanding of corruption and how the identification of "unusual" betting patterns is important for signalling "match fixing". Leading scientists, including Forrest and Simmons, had previously based analysis of match fixing on the choices of sports insiders: whether or not to accept bribes, adapting the general literature on the economics of crime. Forrest (2012) offers a new insight: that it is relevant to consider the demand side as well as the supply side of the market for fixes and that developments in betting markets have increased the demand for fixes.

Benefits and impacts

Instrumental impact

The credibility of sport is threatened by an unprecedented wave of proven cases of manipulation of events for betting gain. This undermines the commercial viability of sport. Sport is particularly vulnerable given the importance of sponsorship in the modern sports business model. Italian league football clubs, exposed as parties to match fixing, have experienced a 20% drop in sales relative to other clubs in the league. The withdrawal of sponsorship following match fixing revelations precipitated the collapse of the Chinese football league. Match fixing is also a threat to the integrity of sport as sportspeople are role models and brand icons.

In this context, the work of Forrest, McHale and Simmons informs the development of international codes of conduct for deterring and dealing with match fixing and for supporting international policy development to combat corruption in sport. *"Threats to Sports Integrity from Developments in the Betting Market"* (2008 report to Central Council for Physical Recreation by Forrest and McHale) brought risk factors that threaten sports integrity to the attention of the FA, ECB, LTA, RFU, and BHA. Reports *"Environmental Review of Integrity in Tennis"*, and *"Threats to the Integrity of Sport in Australia"* followed. Forrest and McHale briefed the then Minister of Sport, Gerry Sutcliffe, MP and influenced "The Parry Report".

Forrest became a key advisor to the International Centre for Sports Security (ICSS), which brings together leaders in world sport and world betting, and moderated a round table discussion among key stakeholders that included the Director General of Interpol. Forrest was a key contributor to the Sports Corruption Working Group of MINEPS V (2013), the fifth meeting of international Ministers of Sport. This meeting set out policies for national governments and international sporting bodies to combat match fixing. Following a 2012 report on match fixing by the Institut de Relations Internationales et Strategiques (IRIS), a partnership between the University of Salford, IRIS, European Lotteries, and SportAccord (the federation of world sports federations including FIFA, ICC, IAAF, ITF, IRB, UCI) is delivering an international seminar series on Sports Integrity. Forrest co-wrote these seminars. Forrest gave keynotes at the INTERPOL Experts' Conference 2012 and the World Bank Seminar 2013. The study *"An Examination of the Threats to the Integrity of Sports"*, commissioned by the EU Sports Platform and launched in the European Parliament, Brussels, comprehensively cites Salford Business School researchers.

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ADDITIONAL CASE STUDIES

The following case studies also provide excellent examples across a range of impact areas. They are available on our website – charteredabs.org.

Impact Area	Title	Business School	Leading Academics
Business Innovation and Growth	Promotion of innovation and adoption in high-tech small firms	Ulster University Business School	Prof. Brendan Galbraith
Economic Performance and Sustainable Growth	Regional economic impacts: input-output models and spatial econometrics	Plymouth University Business School	Prof. Paul Bishop and Dr Steven Brand
Economic Performance and Sustainable Growth	Influencing national and regional policies in the fisheries of Central Asia: promoting legislative change and stocking strategies to enhance growth and tackle poverty	Portsmouth University Business School	Prof. Andy Thorpe, Prof. David Whitmarsh and Dr Ben Drakeford
Farming and Food Sector	Evaluating regional food policy: enhancing and embedding policy for the benefit of farming and food	Newcastle University Business School	Dr Matthew Gordon
Human Resource Management	Migrant workers and vulnerable employment	Keele University Business School	Dr Steve French
Innovation in Health and Social Care	Improving mental capital and wellbeing: a foresight programme	Lancaster University Management School	Prof. Cary Cooper
Innovation in Health and Social Care	Addressing inequalities in health: shaping the allocation of resources in the National Health Service	Newcastle University Business School	Prof. John Wildman
Innovation in Public Services	Information-sharing in public services: improving inter-agency coordination and governance	Newcastle University Business School	Prof. Rob Willson
Innovation in Public Services	Developing and implementing 'Extended Business Reporting Language' standards for online corporate training	University of Birmingham Business School	Prof. Andrew Lyme, Dr Joanne Locke & Dr Nick Rowbottom
Innovation in SMEs	Encouraging innovation: a changing framework for the financing of small-to-medium enterprises	Sussex University, School of Business, Management and Economics	Prof. Paul Nightingale
Labour Relations and Ports	Improving labour relations in global ports	Cardiff University Business School	Prof. Peter Turnbull
Local Economic Regeneration	New directions for local economic renewal	Manchester University Business School in cooperation with the School of Business & Management Queen Mary University of London	Prof. Julie Froud, Prof. Karel Williams, Prof. Adam Leaver, Mr Ismail Erturk, Prof. Sukhdev Johal (the School of Business & Management Queen Mary University of London).
Professional Firms and Financial Markets	Enhancing strategy and decision making in financial services	Leeds University Business School	Prof. Barbara Summers
Professional Services and Financial Markets	Employer sponsored volunteering	Hull University Business School	Dr Joanne Cook
Professional Services and Financial Markets	Ensuring credit unions are fit for purpose	University of St. Andrews, School of Management	Prof. John Wilson
Sport Management	Improving the governance of sport organisations	University of London, Birkbeck College, School of Business Economics and Informatics	Dr Sean Hamill and Dr Geoff Walters
Vibrant and Fair Society	Towards fairer compensation	City University, Cass Business School	Dr Zoltan Butt, Prof. Steven Haberman, Prof. Richard Verrall



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