

<p>Institution: Sheffield Hallam University</p>
<p>Unit of Assessment: 36 Communication, Cultural and Media Studies, Library and Information Management</p>
<p>a. Context</p>
<p>Research in the Communication and Computing Research Centre (CCRC) reflects our interdisciplinary, cross-sector approach, placing communication and computing research into the broader social, economic, technological, political and cultural community. Our research impacts on design quality, cultural and public policy, the capabilities of communities, and cultural and heritage preservation. We have built extensive partnerships with the criminal justice sector, communities and third sector organisations in order positively to impact on quality of life through software design and other research interventions.</p>
<p>b. Approach to impact</p>
<p>Our research impacts on society through a variety of channels: commercial organisations; cultural and heritage organisations; public authorities, notably in the criminal justice domain; community and voluntary groups; and direct communication with the public as consumers of our creative and digital media research.</p>
<p>(i) Commercial organisations: We take advantage of our patents and research outputs to improve the technical design of products, thus promoting business sustainability and innovation. For instance, 3-D techniques from the Geometric Modelling and Pattern Recognition (GMPR) Group have enhanced products and services of commercial organisations as described in the associated impact case study: Adatis GmbH (Germany), Polyskopos Inc. (USA), xCAD Solutions GmbH (Austria), Mehdi Sculptures Ltd (UK). Day's computer security research further improved the already robust security systems of Shop Direct Group (UK's largest on-line retailer), using state of the art network traffic analysis techniques. His research contributed to requirements identification for Shop Direct's multi-million pound investment in security. CCRC's general approach is to develop and maintain commercial links beyond stand-alone projects by converting research users into co-applicants and co-researchers of the future</p>
<p>(ii) Cultural and heritage organisations: Innovative applications of our research are applied across traditional disciplinary boundaries. GMPR research has been used to digitise the metalwork and jewellery collection at Museums Sheffield, and is applied in the design of the planned iconic 'Man of Steel' statue, a 30m tall stainless steel landmark for the Yorkshire region. Research has influenced creative practice, preserving and presenting cultural heritage and cultural regeneration and we provide expert advice to charities and cultural organisations, hence influencing policy and practice. For instance, Deller was consulted by the BBC Head of Religion and Ethics on her research in a paper 'Factual British TV and religion/spirituality: some audience viewpoints' on media portrayals of spirituality. She was invited to present her research in a paper 'Factual British TV and religion/spirituality: some audience viewpoints' to a BBC Staff seminar in 2012.</p>
<p>(iii) Public authorities, notably Law Enforcement Agencies (LEAs): CCRC applies expertise in relation to social institutions, informing public debate <i>and</i> developing novel models of engaging academia with external organisations. Waddington was interviewed and consulted on his public disorder research: BBC Radio Sheffield (2009); <i>Dispatches</i> (Channel 4) (2009); consulted by ACPO Lead for <i>Uniformed Operations</i>/Chief Constable of South Yorkshire on HMI's Adapting to Protest report; contributor to Greater Manchester Police Authority's Scrutiny Review of Major Events Policing (2009-10). Kilby was invited to submit a paper to the Cordoba Foundation Journal, an independent research organisation promoting dialogue between cultures working with non/government organisations, on her research into terrorist identity construction. Subsequently she received an invitation to attend a round table discussion at the Houses of Parliament to discuss the UK's response to the Arab Spring. The eSAFE project (2006) advised SMEs on safety and security on-line via a multi-lingual portal involving Yorkshire police forces, Serious Organised Crime Agency, DTI and Chambers of Commerce. South Yorkshire Police charity used eSafe as a foundation for the successful Business Crime Reduction Centre (BCRC), in 2007. After translation of the eSAFE approach to BCRC, West Midlands Police approached CCRC (2007) for support in developing a technological solution to speed and accuracy of ballistics data analysis. This resulted in the formation of the FP7-funded project ODYSSEY which developed a software prototype to enhance the sharing of ballistics information amongst European Law LEAs and provided a</p>

successful model for transferring university-led research into Government and LEA policy. The collaborative model was formalised in the creation of CENTRIC (Centre of Excellence in Terrorism, Resilience, Intelligence & Organised Crime Research) which facilitates the triangulation between the four key stakeholders in the security domain: citizens, LEAs, industry and academia. CENTRIC's structure forms an exemplar 'Hub for Innovation in Policing' as advocated by the Policy Exchange (2013) - acting as a conduit for collaborative research between universities, local police forces and Police Crime Commissioners. Working with New Scotland Yard, Day's forensic techniques helped convict a prominent hacker, LulzSec, resulting in an official commendation from New Scotland Yard (2013). Day was interviewed for BBC documentary *Meet the hackers* with an 18 million estimated global audience. He appeared on BBC2's *Newsnight*, interviewing the former hacker he helped to convict. He was invited to present his research to the Association of Chief Police Officers' National Cyber Crime Conference in 2012. Organised by the Police Central e-Crime Unit it was attended by 350 police chiefs from around the UK instrumental in cyber crime detection/prevention.

(iv) Community groups, third sector organisations and social enterprises: We work closely with community and Third Sector groups in participatory research projects (many linked to the AHRC Connected Communities programme). The Castleford Heritage Project organised open days with local community groups in West Yorkshire to support proposals for Heritage Lottery Funds and to equip local people with skills to document their cultural heritage in innovative ways. Drawing on an AHRC project, 'Practical Design for Social Action', Dearden served on an ICT Foresight Panel for the National Council for Voluntary Organisations (NCVO), and worked with the Council to map and develop the capability of Third Sector organisations in using co-design approaches for services and communications strategies. He worked with a Leeds community group to test new understandings of how community organisations can appropriate vacant spaces. Principles of co-research and co-design with marginalised groups underpinned Dearden's work with farmers' co-operatives in India (in collaboration with SAP) and West Africa (see case study) to improve access to agricultural advice, enabling them to trace their supply chain and hence qualify for 'Fair Trade' premiums.

(v) General public- consumers of film, TV media and creative digital media research: The SHU Media Relations team promotes events and activities to relevant audiences to assist staff external engagement. CCRC's research on film, TV and media impacts the general public through presentation of our work in media and other outlets. Hogg is a regular guest expert for BBC Radio York, providing research perspectives designed to improve public understanding of current broadcast content and connected events, such as the 50th Anniversary of *Coronation Street*, the rise of British 'reality' programming, and the trans-Atlantic success of British-produced dramas. He was a credited script consultant for forthcoming films *Bula Quo!* And *Red Snow*. He also co-organised a one-day symposium, *Playing the Small Screen*, at the University of York in July 2012, bringing together academics, professional actors and actor trainers from RADA, LAMDA, CSSD and Bristol Old Vic to share ideas and debate issues surrounding actor training for television. Hall has stimulated public debate and public understanding of media representations of imperial history through the impact of his research on the film *Zulu*. He was invited speaker and chair of the panel discussion to launch the *Zulu* exhibition at the London Film Museum in 2010, and was an invited participant in panel discussion on the 1879 Anglo-Zulu War, its influence on, and representation in, popular culture at the National Army Museum, Chelsea in 2010. He also produced a commentary for the *Zulu* DVD. His popular book *Zulu: With Some Guts Behind It* (2005) sold out in hardback (4000 copies), with used copies retailing for over \$1,000 on Amazon (US website as of November 2013). He was an invited speaker at the Bradford International Film Festival (2008-2011) and an interviewee in the television documentary *Epic! A Cast of Thousands* (BBC4 2011). Chi-Yun Shin has presented her research on South Asian film to public audiences. She hosted the Q&A session with Japanese director, Katsumi Sakaguchi, after the screening of his film *Sleep* (2011) at the Showroom Cinema in Sheffield in 2012, introduced the Sheffield Tour of the London Korean Film Festival in 2011, and hosted the Q&A session with eminent Korean film director, Hong Sang-Soo after the screening of his film *Woman on the Beach* (2006) in Manchester in 2010. Adam contributed to an episode of *Find My Past* (Yesterday channel) on her research on history of forensic science in November 2012.

Infrastructure Supporting Research Impact

The University's Research and Innovation Office (RIO) provides central expertise to help deliver research impact. Dedicated personnel (8.0 fte) support the exploitation of research and create commercial technology transfer relationships with external organisations. An annual budget of £80k is invested in patents, legal fees and company spin-outs. RIO collates data on impact via a database capturing feedback from external clients about the benefits of our interventions.

Higher Education Innovation Funding (HEIF) has been invested in a Knowledge Transfer (KT) team comprising Knowledge Transfer Champions in faculties and a coordinator post. A dedicated KT team (shared with the Art and Design Research Centre) offers additional Unit support in the form of 3.7 fte KT staff who facilitate academic engagement with business, commerce, third and public sectors. Impact engagement is encouraged by an annual allocation of KT time in the workload of academics to aid the impact delivery from current research projects or to develop potential partnerships. The importance of this provision is exemplified by Day, whose work on network intrusion detection with Shop Direct was facilitated by KT colleagues, resulting in an on-going relationship. Finally, CCRC monitors and manages the impact development on all its research projects through a project start-up meeting, assigning mentors, and thrice yearly Project Monitoring Group meetings.

c. Strategy and plans

CCRC's strategy for impact for 2014-2019 includes: early identification of potential impact of a research project so that support for impact may be built into the project specification at an early stage, particularly where an audience beyond the academy may be reached; explicit consideration of potential and actual impact from research through annual academic research appraisal; resources for the exploitation of unforeseen impact possibilities, recognising that some impact may not be identifiable in advance; maintaining university, and local infrastructure and investment at present levels, to support impact; securing an average of three KTPs per annum with RIO support; growing non-research/consultancy income to an average of £300K per annum; staff development to enable identification of impact, dissemination of findings and partnerships development; growing the number of staff involved in research impact from 10 to 20; disseminating research findings through a full range of media e.g. social media (Twitter, Facebook) and increased use of SHU media teams and alumni; funding knowledge exchange events and networks to engage with beneficiaries; and using Innovation Futures, an ERDF-funded initiative through which the University supports Yorkshire businesses, to innovate and develop their services, products and processes, in order to fully realise the commercial impact of our research in the areas of user interface design and evaluation.

d. Relationship to case studies

The three impact case studies evidence a strong link between academic analysis, knowledge transfer and impact. Wider dissemination has been achieved through media activity. The case studies inform our research strategy (2014-2019) by offering a learning model which perceives impact as a long-term activity requiring continued nurture best achieved through multiple means of engagement with beneficiaries. Hence impact achieved at local level can inform models of impact at national or international levels with a cumulative impact of considerable significance. Recognising these routes to impact, CCRC provides strategic investments to secure the impact of promising research. For example, Dearden's work with Indian farmers was supported by meeting the salary costs required to enable the research associate (Rizvi) to complete field trials for an extra four months after EPSRC funding ended, and by supporting Dearden disseminating the research at conferences. These investments helped him establish links with SAP Research enabling the collaborations for West Africa. The 'Man of Steel' (GMPR case study) demonstrates ways in which KT support and different funding streams can enable research impact. Research into 3D scanning developed via a JISC digitisation project focused on cultural artefacts. Following that, a response to an enquiry from a local sculptor was supported by a University regional development scheme (Innovation Futures). This enabled our scanning technology to be used to digitise the proposed 'Man of Steel' sculpture to create larger models and visualisations of a proposed iconic art piece for South Yorkshire. The project was further enhanced as regional education and cultural focus via a cross-disciplinary university research fund (IMAGINE). Thanks to this support the 'Man of Steel' project has significant levels of regional interest and commitment.