

Institution: University of Wales, Trinity Saint David
Unit of Assessment: 17
<p>a. Context</p> <p>Landscape and Environment. The School of Archaeology, History and Anthropology has a strong track record in the reconstruction of past environments and landscapes. Research and consultancy includes climate reconstruction and palaeoenvironmental services in dendrochronology, geoarchaeology, GIS, human bone analysis, nautical/underwater archaeology, plant macrofossils, pollen analysis, Quaternary stratigraphy, and soil/sediment analysis. Likewise, work in the School of Natural and Built Environment focuses on coastal geomorphology, physical processes, coastal management, and marine conservation. Knowledge transfer is organised through University of Wales Lampeter Archaeological Services and consultancy projects in the School of Built and Natural Environment. Clients that have benefited include heritage and environment agencies, such as English Heritage, Cadw, the National Trust, archaeological trusts, Environment Agency, Royal Society for the Protection of Birds, National Parks, Sustainable Development Commission, Countryside Council for Wales, the Sea Trust, the Marine Energy Task Group for Wales, in addition to contractors and industry.</p> <p>Historic Culture: Medieval, Monastic & Islamic. The cluster's activities cover maritime heritage and several areas of material culture, most notably the AHRC research on the medieval Newport Ship, the Strata Florida Project, and Islamic Archaeology with collaborative projects undertaken in the UK and overseas with agencies such as the Qatar Museums Authority, the British Museum, Museum of Islamic Art Doha, Israel and Palestine Antiquities Authorities. Research also includes archaeological and historical work on medieval monasticism, the development of castle and episcopal architecture and Scottish religious identity. In each, beneficiaries of the research bridge heritage custodians and agencies (e.g. Blair's Museum, Cadw, Ceredigion County Council, Heritage Lottery Fund, Forestry Commission, National Trust) and community groups who have engaged directly in the research process itself as volunteers (e.g. Friends of the Newport Ship, Fetternear community digs, Hanes Llambled). Work in this area has influenced policy, levered investment in heritage sites of international importance, and formed the basis for new heritage interpretation strategies and materials.</p>
<p>b. Approach to impact. Since 2009, the research cluster and faculty has been supported by a dedicated Research Development Officer who has assisted academic staff in identifying opportunities for knowledge transfer, and where appropriate, identified sources of funding to enable that to take place through a range of sources and non-academic agencies. Specifically:</p> <p>i) Landscape and Environment. A key element of the cluster's approach to knowledge transfer and its associated impacts is built on its funded projects. The Offshore Renewable Energy Impact Network (OREIN), for example, advised upon the uncertainties that surround the cultural, economic and environmental impacts of our responses to climate change through the development of offshore renewable energy. Over 18 months the network worked on a policy review and needs-based analysis through engagement with heritage and environment organisations, businesses in the offshore renewable energy supply chain and other stakeholder groups. The purpose was to identify needs and opportunities for research and commercial activity in the sphere of marine and coastal cultural heritage and to advise on policy in the areas of low-carbon energy, marine heritage and coastal tourism. The Automated Sensing Technologies for Coastal Monitoring (ASTEC) project developed empirical formulae to assess beach change in response to forcing agents associated with climate change (water level, wind and waves), establishing a quantitative relationship between seaward and landward limits of the active beach profile. Subsequently researchers in the cluster (and also those submitted in UoA 15) went on to collaborate with Wireless Fibre Systems and Valeport Engineering to develop a sensor network to determine submarine sediment movement for coastal erosion monitoring. This was selected as a finalist for the Engineer Technology and Innovation Awards which took place at The Royal Society in December 2010. Other work that follows this approach includes that carried out by Bates, which has been motivated by government, industry and public need for better methods to investigate and predict foci of buried archaeological remains in challenging marine environments. The impact has been based on the development of an integrated, multi-disciplinary approach involving geophysics and geotechnical investigation. The approach developed by Bates over the last 20 years has shifted the way in which contractors and curators work and often appear within the Written Schemes of Investigation required for development by local governmental organisations and others responsible for heritage and conservation management within the planning control sphere. Following consultation with</p>

representatives of EMU they have been adopted within the procedures and guidelines for use with the offshore renewable sector. The application of these methodologies within the marine sector was recognised through the development of protocols for geotechnical survey in the marine zone that has been adopted by COWRIE as best practice in wind farm development mitigation.

ii) Historic Culture: Medieval, Monastic & Islamic Research in this area has had a significant impact on a number of different non-academic beneficiaries. In addition to the Newport Ship project (REF3B) this has most recently been delivered on the Strata Florida project. Running since 2004 the project is centred on a former Cistercian abbey and its estate in mid-Wales, a small part of which is consolidated as a Cadw guardianship monument. The research programme has acted as catalyst for the raising of Strata Florida's profile to one which is recognised as a site of both national and international significance. This has been achieved through our contribution to monument management and the enhancement of the historic record where underpinning research has been used by Cadw to assist in managing and presenting the guardianship monument of Strata Florida for the public and to inform the historic record of the site for future development and scheduling. Cadw has used the data and interpretative material in its written guides and publicity and in its major refurbishment of the on-site visitor museum and reception area. Funded through Cadw by the Welsh Government and from EU Convergence Funds the project aims to maximise the economic value of heritage by increasing the number, length and value of visits to Wales. Additionally impacts have been secured through the cluster's work on site funded through the EU Rural Development Plan where in recognition of the site's historic importance for the Nation's heritage, Ceredigion County Council and Welsh Government approved a £406,776 project for the university funded by the EARFD (RDP) in 2009. The two-year *Strata Florida Heritage Landscape Tourism Project* was made under the Axis 3 priority to improve the rural life and economic development of the area, in this case through research studies, public events, a primary education programme, public consultations, interpretation plans and physical interventions. Each was intended to conserve and upgrade the rural heritage. As a direct result of our work the site is now recognised by the Welsh Government as one of the top 11 heritage sites in the nation. Visitor numbers on site have seen a steady increase during the period, recording a 162% rise from a baseline of 3441 in 2008 to 5562 in 2011. More recently, visitor numbers and length of stay have seen considerable peaks during the project's public excavations, with figures documented in excess of 900 (source: Cadw custodian).

In a similar way Abram is participating in the Norton Priory Museum Trust Research Framework, collating and editing the extant documents of the house for publication by the Record Society of Lancashire and Cheshire. This is feeding into the Trust's research agenda to build a business case for funding bodies regarding the importance of the site and to provide a framework for future heritage interpretation strategies and promotional activity. Based on these activities the Trust has secured Heritage Lottery development funding of over £250,000. The cluster has also developed and delivered impact activities through Dransart's work on the Scottish Episcopal Palaces project and Burton's with the Monastic Wales project. The latter has established a comprehensive monastic history of medieval Wales, the findings of which are available to the public through an online and interactive database (www.monasticwales.org). This can act either as a scholarly resource, or on a different level, as a set of heritage interpretation materials. The approach to knowledge transfer has built upon this resource by giving public talks introducing the database to local history societies and lectures and guided tours to monastic sites for the National Trust. The project will also see the publication of a forthcoming popular book, *Abbeys and Priors of Wales*. The Scottish Episcopal Palaces has also worked with the Heritage Lottery Fund, communities and local history associations at Fetternear to provide heritage skills training with members of the local community. Professional beneficiaries of the research activities include Aberdeenshire Council, Historic Scotland and the *Royal Commission on the Ancient and Historical Monuments of Scotland* through providing data to enable these bodies to comply with planning regulations and their statutory obligations regarding the archaeological heritage. Research in the cluster also includes projects with impact both in the Britain and the Middle East. Of particular importance is the Nations of the Sea Conference held at the National Museum of Wales which brought together researchers from Qatar and Wales. The conference was funded by LNG South Hook, a Qatari company based in the UK and also supported by the Qatar Museums Authority. Welsh institutions supporting the conference included the National Museum of Wales and Cadw. Petersen is working with the Qatar Tourism authority to open one of its heritage locations to the public as a combined natural and historic

heritage site with a view to UNESCO designation in the future. He has also acted as a consultant for the British Museum Exhibition on the Hajj contributing text to the catalogue and advising on content and aims for the exhibition. His work on the archaeology of the Hajj also featured on the BBC Radio 4 programme Making History. He is currently advising and contributing material for the Hajj Exhibition to be held at the Museum of Islamic Art in Doha while research on Medieval and Ottoman Palestine has also been used to inform architectural projects in Nazareth and elsewhere in Israel and Palestine.

c. Strategy and plans

Rural development. Staff in the cluster are currently working with National Park authorities, rural development agencies and community organisations throughout France, Belgium, Holland, Ireland, Wales and Germany on the EU funded Rural Alliances project (€10m). Over the next four years Abbots will focus on interventions and models to tackle demographic change and promote sustainable rural communities. Our research will benchmark and measure rural vibrancy through a transnationally agreed process and assist delivery partners in forging new relationships between the public, private and community sectors to safeguard and enhance public services and rural resources. This research will underpin impacts that will generate at a minimum 34 new community and business alliances to tackle demographic change in the 5 partner countries and contribute to policy making in each region. Our further aspiration is to influence policy at a national level which is currently being developed through our staff chairing a transnational policy advisory panel. Also aligned to EU and RCUK priorities, such as global food security, smart growth and demographic change, further work will focus on rural sustainability, supermarkets and ethical consumption. This research is examining the innovative ways small social enterprises and community groups collectively secure food outside mainstream routes dominated by national supermarkets and intensive supply chains. We are planning impacts through the creation of long-term mechanisms ('food-labs') for sharing knowledge and developing skills which will enable food innovators to foster conditions for more sustainable supply chains.

Climate Change and Sustainable Growth. The significant sectors for development in this area by several staff in the cluster include examining long-term environmental change through new techniques in isotope dendroclimatology. These are producing a unique record of summer temperature for regions where other physical climate proxies records are either unavailable or not capable of accurately reconstructing temperature at an annual resolution (Bale and Nayling). Also Bates is working on the application of modern proxy records to examine change within and at the end of interglacials in order to understand sea level histories. These developments are linked through research foci in submerged landscapes in Orkney and the Channel Islands where funding through the latter's Tourist Board is likely to impact in the long term through developing new museum displays. Aligned with RCUK and Horizon 2020 priorities such as climate change, resource efficiency and sustainable agriculture, work will also continue to explore archaeological research in the developments in land use, soil and economy from the Neolithic to the Norse period. In each of these areas the cluster's impact work continues its highly successful strategy of working directly with a broad range of organisations, industry partners, environment and heritage agencies and government bodies at regional, national, European and international levels.

Heritage. The cluster's impact strategy in the area of heritage is ambitious and presently focuses on the ongoing Strata Florida project. The university is currently entering into partnership with a buildings preservation trust (CHRT), with the intention of acquiring, conserving and developing a set of listed farm buildings (Mynachlog Fawr) adjacent to the guardianship monument of Strata Florida. The project will not only conserve the cultural heritage which is under significant threat, and provide significant opportunities for further funded underpinning research, but also provide a range of impacts in the areas of teaching, training and tourism. Discussions are underway with National agencies, such as Cadw, the Prince's Regeneration Trust and CITB Construction Skills regarding training opportunities in traditional and sustainable building practices which will underpin and sustain the development.

d. Relationship to case studies. The overall approach to impact is consistent with the selected case studies; the dual focus is on collaborative working with heritage and environment agencies and organisations (as in the Newport Ship project and with Rio +20). Likewise the cluster continues the work outlined in the case studies around educational outreach programmes, popular dissemination and public commentary based on research findings through BBC Wales and other media, public talks and exhibitions and knowledge transfer and consultancy with the public, private and third sectors.