Institution: University of Salford

Unit of assessment: C16 Architecture, Built Environment and Planning

A: Context: Research at the University of Salford within Unit of Assessment C16 focuses on the built environment as a catalyst for the development of inclusive, resilient and sustainable communities, transforming quality of life whilst supporting the well-being of future generations. The contribution architecture, built environment and planning research at the University of Salford makes to improving resilience, sustainability and reducing risk, developing social, economic and cultural capacity, and improving standards, regulation and policy, are core achievements of the unit's research impact. The main non-academic user groups, beneficiaries or audiences and main types of impact specifically relevant to research within Architecture, Built Environment and Planning at the University of Salford include:

- Communities vulnerable to natural or man-made hazards and marginalised groups within these communities, the agencies and voluntary sector organisations working with them; the insurance industry, local, national and international governments:
  - Impact is generated leading to a reduction in the vulnerability of communities world-wide to the threat posed by hazards of natural and human origin, resulting in socially inclusive public policy-making and its implementation.
  - Impact is generated in the area of reducing the risk of flooding and promoting property level adaptation and business continuity measures in the UK, reducing the economic and social consequences of flooding.
- Older people, disabled people, their, families, and carers, local authorities, planning bodies, environmental policy makers:
  - Impact is focused on identifying the most effective ways of shaping outdoor environments, inclusively, supporting the needs and preferences of older people and disabled people.
- Gypsy, Traveller and Roma communities, planning policy makers, local authorities:
  - Impact is focused on supporting local authorities in addressing Roma, Gypsy and Traveller exclusion, improving community cohesion and improving life chances.
- People living and working in cities, city policy makers, planners and governments:
  - Impact is focused on developing governance processes to develop effective responses to the range of economic, ecological, social and political pressures and problems facing cities.
- The construction sector and the communities the sector works in; planning authorities, infrastructure agencies and utilities providers:
  - Impact is focused on the processes that define and deliver value within the construction sector, in particular, in the use of procurement to deliver wider sustainability and maximise the value jointly created by the stakeholders to construction.
  - Impact is generated in advancing of the use of information technology in the UK construction industry, creating a highly influential international network and developing the use of IT and other technology to improve efficiency.
- Families and communities, school students, school staff, local authorities, voluntary sector organisations, education policy makers:
  - Impact is focused on the relationship between holistic spatial assessments and learning rates of school pupils and in underpinning the development of the Decent School Standard to help schools improve the design and use of their environment.
- Social Care Services, Children's Services, healthcare providers, Environment and Community Safety Agencies, Police and Fire and Rescue Services and Housing Trusts:
  - Impact is focused on creating virtual urban spaces populated with rich statistical information, enabling local agencies to work collaboratively to understand how partner resources are being invested to achieve 'better for less' services.
- Householders, communities, local authorities and policy makers:
  - Impact is focused on utilising participatory methods including community involvement to change the context in which people take decisions to live and work more sustainably.
- Acoustic environments, venues, musicians, audiences, communities subject to decisions about wind farms, planning authorities, utilities companies and environmental agencies, the international aerospace industry, UK Health and Safety Executive:

- Impact is generated through the development of acoustic treatments which are used in performance venues worldwide (such as concert halls, theatres, studios, school halls) to improve the acoustics of spaces.
- Impact is focused on influencing UK guidelines on wind turbine noise, improving structure-borne sound in buildings and the sound insulation properties of building claddings, implemented by the UK building cladding manufacturers' trade association.

The impact described relates to the following range of research activity or research groups in the Unit within the School of the Built Environment:

- The Centre for Disaster Resilience's (CDR): The Centre for Disaster Resilience promotes research that examines the role of building and construction to anticipate and respond to disasters that damage or destroy the built environment and is working with communities around the world to increase their resilience to the threat posed by natural and human induced hazards.
- SURFACE Inclusive Design Research Centre: explores design using the social model of disability, from the planning of the public realm to the detailing of the home, its products and technologies. Research is focused on the detailed design of accessible streets and neighbourhoods; places that can be used by everyone, regardless of age, ability or circumstance, supporting the needs and preferences of older people and disabled people.
- The Centre for Sustainable Urban and Regional Futures (SURF): generates understanding about how political, economic, social, technological and environmental changes interact to affect urban and regional futures and is the only UK partner in a 12 year research programme funded by the Swedish Environmental Foundation: Mistra Urban Futures for sustainable urban development to transfer knowledge, promoting cooperation with business, interest organisations and communities.
- The Salford Centre for Research and Innovation (SCRI): The Centre's themes of procuring value, seamless delivery of value and realising value in use with an integrating activity of research exploitation and knowledge exchange, focused in the sectors of Health, Education and Housing have improved school and hospital design, and developed an asset management system adopted by the construction sector, superseding previous methods.
- The Acoustics Research Centre is focused on the commercial and cultural application of acoustics research, developing new design methods used in performance spaces worldwide; reducing inefficiency and costs by standardising vibration and low frequency noise thresholds for wind turbine installation and developing standard test methods, specifications and compliance requirements for structure-borne noise.
- Salford Energy Hub: was established in recognition of the need to bring together multi-disciplinary teams to address the challenges faced by the continuing growth in demand for utilities, and the need to reduce CO2 emissions and energy consumption. The Hub includes research expertise in built environment, thermo dynamics, materials, social science, behavioural psychology, and housing as well as computer science and informatics. The Hub includes the Salford Energy House, an authentic early 20thC terraced house reconstructed in a fully environmentally controllable chamber.
- MediaCityUK: encourages creativity, innovation and collaboration between researchers, professionals, communities and industry and is developing links with user groups including an audio research partnership with the BBC, links with large multinational corporations including Adobe, BT, CISCO, Hewlett Packard and public, community and voluntary sector organisations, public sector bodies and SMEs.
- ThinkLab: is committed to conducting interdisciplinary research to address complex social, economic and environmental challenges. ThinkLab's research is enhanced through creative collaboration with industry, public organisations and academic experts.

b. Approach to impact: The Unit's approach to interacting with, engaging with or developing relationships with key users, beneficiaries or audiences to develop impact from the research is as follows:

- Reduction in the vulnerability of communities world-wide to the threat posed by hazards of natural and human origin by working with affected communities to understand post disaster needs from their perspective, and supporting policy makers and government

stakeholders to embed disaster management in their strategies and policies.
  - *Impact Case Study*
- Reducing the risk of flooding and promoting property level adaptation and business continuity measures by linking communities, SMEs, voluntary sector organisations, local authorities and the insurance industry to develop networks, resources and toolkits.
  - Evidence: Report to RICS on impacts of flooding for SMEs.
- Inclusively supporting the needs and preferences of older people and disabled people, by adopting a participatory framework where older people and disabled people are central to research methodology, with older people and disabled people, and designers and developers of open space and the outdoor environment.
  - *Impact Case Study*
- Supporting local authorities in addressing Roma, Gypsy and Traveller exclusion, improving community cohesion and improving life chances by supporting local authorities to produce Gypsy and Traveller Accommodation Needs Assessments (GTAAs) and assessing progress on meeting those needs.
  - *Impact Case Study*
- Designing novel governance processes to address pressures and problems facing cities by developing new ways of working between policy makers, communities, artists and business to address the challenges of sustainable urban development.
  - Evidence: Mistra Urban Futures
- Defining and delivering value in the use of procurement to deliver wider sustainability by engaging government, the construction industry and construction skills specialists to develop a construction industry which delivers wider sustainability goals.
  - *Impact Case Study*
- Advancing the use of information technology in the UK construction industry by developing advanced digital mapping technologies to promote the flow of information between departments, sites, contractors and partners in BIM (Building Information Modelling).
  - *Impact Case Study*
- Helping schools make decisions about the design and use of their environment by developing a methodology collaborating with local authorities, schools and students to understand the sensory impacts of the built environment**.**
  - Evidence: Optimal Learning Spaces, Design Implications for Primary Schools
- Enabling local agencies to work collaboratively, deliver shared outcomes and 'better for less' services by working with Salford City Council's Strategic Partnership Executive (SSPE) to support the Greater Manchester Life Chances pilots.
  - Evidence: Virtual Salford
- Utilising participatory methods including community involvement to change the context in which people take decisions to live and work more sustainably by using motivating techniques including incentivising to promote sustainable decision-making.
  - Evidence: Resilient Homes Trial Report
- Improving the acoustics of spaces by engaging with the construction industry, the public sector, acoustics venues, musicians and the public to develop a better understanding of where diffusers can be used and how people perceive the effects of diffusers.
  - Evidence: RPG Diffuser Systems Technology Overview
- Influencing UK guidelines on low frequency noise and noise from wind turbines by working with local authorities and communities to develop an 'annoyance methodology' for developing mechanisms for influencing planning policy.
- Developing standards for structure borne sound and improving the sound insulation properties of structures by working with the building, automotive and aerospace industries and environmental agencies to implement international standards.
  - *Impact Case Study*

Staff within the Unit, from early career researchers to established research colleagues, were supported and enabled to achieve impact from their research through the following initiatives:

- Developing Knowledge Transfer Partnerships;
- The development of an engagement policy for which included targeting global commercial and industrial partners, NGOs and Governments;

- Creating a formalised enterprise centre, taking the research to partners through the Centre for the Exploration of the Urban Built Environment CUBE;
- Fee waivers in key areas of research;
- Workload allocation, allowing dedicated time to pursue impactful research and the application of discretionary funding to enable staff to respond to capitalise on opportunities to generate or enhance impact.

The unit made use of institutional facilities, expertise or resources in undertaking these activities through:

- Promotion and development of impact through the Salford Impact initiative;
  - Salford Impact Advisory Group with cross – university and external representation to build momentum and develop excellence in evidencing impact;
  - Impact Fund to support researchers in generating impacts and celebrating impact in the Vice Chancellor's Research Excellence Awards.
- Embedding impact in funding bids;
- Early Career Researcher training in impact;
- Sabbatical scheme with a key focus on generating impact.

c. Strategy and plans: With a record of generating research in partnership, the University of Salford is well-placed to articulate its impact. It has developed an institutional approach, Salford Impact, with the aim of evidencing, developing and celebrating the transformational impact of University of Salford research. Architecture, Built Environment and Planning research exemplifies Salford Impact in its current and future research practice through placing increased focus on ensuring the successful realisation of impact through all research activity, wherein the built environment and the processes and mechanisms which support it, drive the development of economic benefit, environmental sustainability and resilience, and inclusive development as implicit elements of its research practice:

- Increasing innovation in and depth of partnerships with public, commercial, voluntary and community sector organisations, with enhanced focus on understanding and addressing their pressures and supporting their priorities;
- Taking an increasingly structured approach to deriving and applying learning from our impact; and,
- Increasing the involvement of partners and communities in understanding and strengthening the impact of our research.

d. Relationship to case studies: The following Case Studies exemplify and have informed the development of the Unit's approach to impact:

Case Study 1: Centre for Disaster Resilience: The development of a disaster resilient built environment through the development of better informed and more socially inclusive public policy-making and implementation in the development of a disaster resilient built environment.

Case Study 2: Inclusive design for getting outdoors: The future of the outdoor environment through practical application in mixed environments of research generating compelling evidence that well-designed outdoor spaces can enhance long-term health and wellbeing.

Case Study 3: Addressing Roma, Gypsy and Traveller exclusion through its focus on working in partnership with policy makers, local authorities and Gypsy, Traveller and Roma communities to support improvements in quality of life.

Case Study 4: Building Information Modelling through enhancing the procurement, design, build, ownership, use, maintenance and disposal of built environment assets, supporting the entire spectrum of real estate and infrastructure on open principles to ensure the long-term viability of serving the built environment of the future.

Case Study 5: Procuring Value through its focus on sustainable construction and improved public services, improving the performance of existing construction projects, and commercialising new products and support services to construction clients and suppliers.

Case study 6: Structure Borne Sound through addressing the effects of structure borne sound on the environment and supporting compliance with acceptable noise levels in a wide range of sectors.