

Institution: University of Salford

1. Context and mission

Salford gained university status in 1967, having started in 1896 as the Royal Technical Institute, and has maintained focus on developing global reach through partnerships, whilst remaining committed to driving impact internationally, nationally and locally. This is reflected in our vision: to *pioneer exceptional industry partnerships that will lead the way in real-world experiences, preparing students for life*. In 2019/20, the University had more than 21,000 students, with a postgraduate researcher (PGR) community of over 600 from 43 countries.

We are committed to undertaking research that is globally relevant, especially within low- and middle-income countries where our expertise is used effectively to support governments and communities to enhance socially inclusive disaster resilience, health and midwifery, infrastructure and environmental sustainability. Testament to this ongoing commitment is our £5.5m EPSRC CDT in prosthetics and orthotics. At the forefront of our internationally renowned reputation for collaboration with industry is our Acoustics Research Group who work with high-quality goods manufacturers in Germany and beyond. Our work on net zero carbon is led by our investment in building and material energy efficiency through Energy Houses 1 & 2. Whilst our commitment to Build Back Better and improving productivity is evident in our investment in the North of England Robotics Innovation Centre (NERIC).

As a signatory to the **Civic University Agreement**, we work with stakeholders to address economic and societal challenges globally, nationally and within our city-region. Through our partnership with Salford City Council, the University has embarked on an ambitious 10 –15-year redevelopment strategy: **Salford Crescent and University District Masterplan**. The University is at the heart of this **£2.5 billion**, 240-acre major regeneration scheme, aimed at driving economic and social prosperity for the whole city and transforming the campus into a civic and cultural gateway. Alongside this a purpose-built Innovation Zone (circa 3 million ft² of floorspace) will ensure we achieve our research aspirations and strengthen links between our research, skills training and employers. It is here where NERIC and Energy House 2 are under construction, with future plans to open a dedicated Acoustics building, followed by a new facility for our Human Movement and Rehabilitation research.

The University recently restructured into 4 Schools (**Figure 1**). Research and postgraduate activities are supported through 8 interdisciplinary Research Centres. The University's research strategy is the responsibility of our PVC Research and Enterprise, supported by the Schools' Associate Deans for Research and Innovation (ADRs) and the Research and Knowledge Exchange (RKE) Directorate. RKE is the central hub supporting researcher training and development, research bidding, KTPs and partnership development, and the home of the Doctoral School to support postgraduate researchers (**Figure 1**).

The disciplinary mix we present in our REF2021 submission has developed over 50 years, demonstrating a steady broadening of our research base and sustained success in these fields. Reflecting the University's history as a technical institution, we submitted primarily to STEM disciplines in the Research Assessment Exercises of the 1990s, with the addition of sociology, European studies and library & information management in 1996. By RAE2008, we had expanded our research strengths into the built environment, allied health professions, business and 4 additional arts and humanities subjects. This closely mirrors the 11 units of assessment to which we submit in 2021.

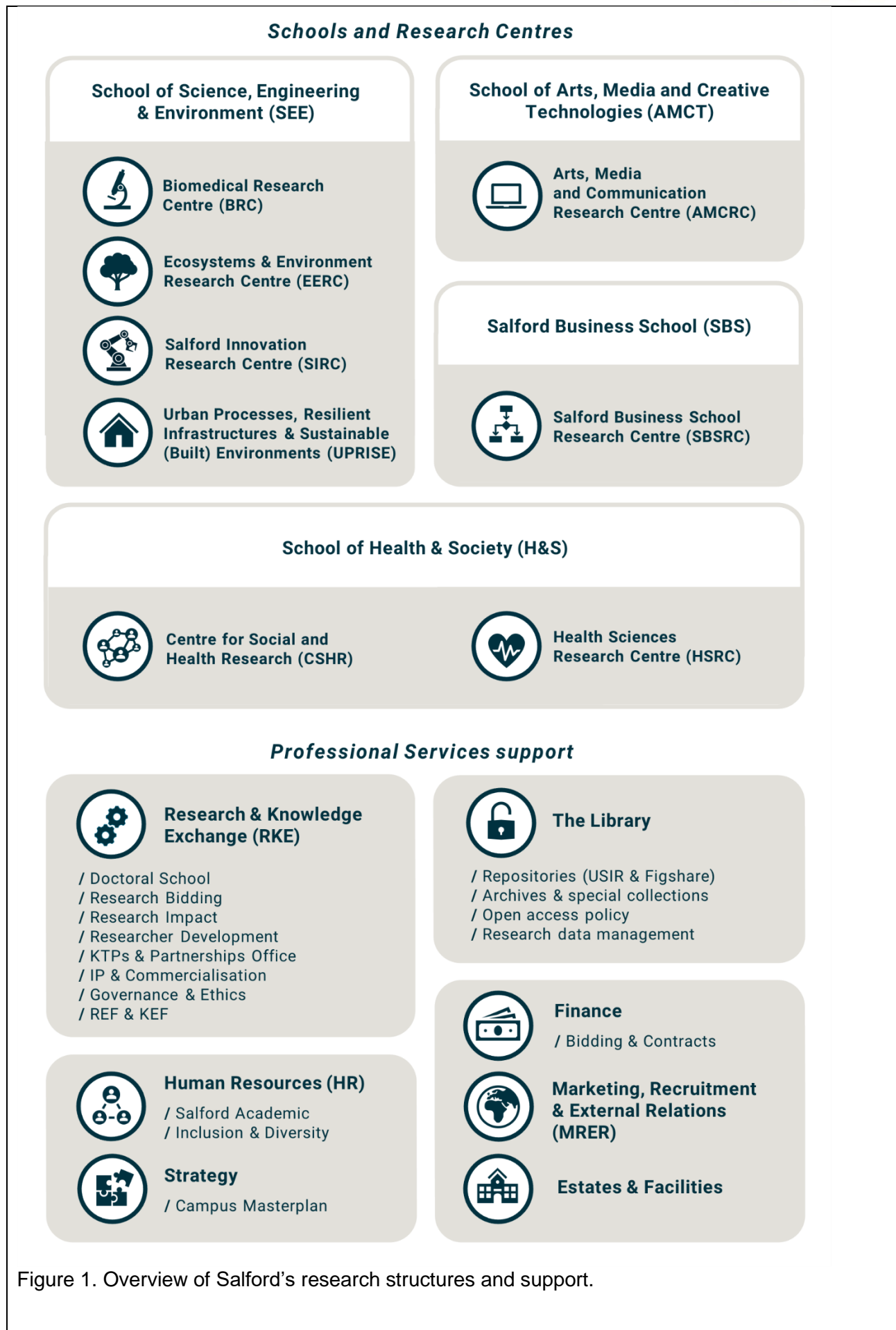


Figure 1. Overview of Salford's research structures and support.

2. Strategy

Achievement of strategic research goals

The University's Research Strategy is articulated as a long-term vision with formal reviews every 3 years to ensure our institutional direction and goals align with external drivers and the evolving research landscape for the sector. The focus of the **2014-2020 Research Strategy** was to develop, support and promote high-quality research with impact, prioritising those areas where the University is unique or otherwise leading. This was implemented through 4 interlinking strands focused on our systems supporting and enabling research:

- **Platforms:** Formation of 8 new Research Centres (RCs) to improve research cohesion and interdisciplinary collaboration (**Figure 1**).
- **Partnerships:** The development and management of strategic external partnerships to generate engagement and income.
- **PGR support:** Creation of a Doctoral School, overseen by a new academic Director role, to improve central support and offer a clear profile for doctoral candidates across subject areas.
- **Professional Services support:** creation of RKE as a standalone department, with oversight by the Deputy V-C, as well as a dedicated Dean of Research and ultimately a PVC Research and Enterprise.

In response to a changing external environment at local, national and international level, we updated our Research Strategy in 2016-17. The **Research & Knowledge Exchange Strategy 2017-2027** frames a 10-year commitment to grow and support our outstanding areas of research to address the challenges of living in the Anthropocene era. In developing this strategy, our current research expertise was aligned to the UN's Sustainable Development Goals (UN SDGs), as well as national and regional industrial policy, thereby ensuring that our research delivers social and economic benefit at all levels. Since its inception, Salford has been a University committed to producing foundational research and its application through partnership working. The strategy sets out our response to key global challenges and we implement our activities through an Industry Collaboration lens, which defines our ethos and research culture.

Through discussion and co-creation with our research community, we determined **key themes** for the future of our research. We have successfully brought together researchers under these key themes, fostering new cross-disciplinary research clusters and we continue to invest resources and support their development through our interdisciplinary RCs:

1. **Industry 4.0:** *How can innovations in technology deliver improved productivity?*
2. **Ageing and Bio-health:** *How can we live well for longer?*
3. **Energy, Housing and Infrastructure:** *How can we house 9 billion people?*
4. **Sustainability and Environmental Quality:** *How can we maintain a planet which is beneficial for humankind and all other life?*
5. **Creative and Resilient Communities:** *How can we manage crises without undermining civil society?*

From 2017, the 5 strategic objectives have been actively addressed through revision of our investment priorities and central research support systems:

OBJECTIVE 1: *Focus on the development of novel **technologies** to create state-of-the-art solutions to address research challenges within our key themes.*

Our current and future focus for strategic investment lies in 3 distinct areas: '**Robotics**', '**Digital**', and '**Smart and Sustainable Living**'. These have huge growth potential as they align with government priorities. They are areas in which we are approaching a critical mass of research expertise, research-informed teaching provision, enterprise and business engagement activities, which will help us use our research expertise to deliver tangible, real-world impact.

We have already seen substantial success for our lead area of **Robotics**, acquiring **£13m ERDF and Research England funding** (match funded by £4.6m from the University) to create the **North of England Robotics Innovation Centre (NERIC)**. This will house robotics, manufacturing laboratories, automotive facilities and teaching space. It will serve as a UK hub led by the University's Autonomous Systems and Robotics group (UoA12) to work with businesses seeking innovative solutions for infrastructure, supply chains and health technology in a post-COVID world.

OBJECTIVE 2: *Work with our industry partners to train **postgraduates** conversant with the latest technologies and practices, who will bring creativity and innovation into the workplace.*

We place considerable importance on providing support to our PGR community to enhance their student experience and we increasingly link the Salford PhD experience to our **Industry Collaboration** principles by developing new programmes. For example, the **Salford iCASE** studentships drawing in funding from industry project partners and the **Graduate Enterprise Studentship** that enables research candidates to undertake commercial work alongside original research, helping them to conceptualise, undertake and translate research to meet industry needs. Through our **Creative Coach** provision, we enable research students working in STEM subjects to request a coach as part of their supervisory team to advise on impact, novel public engagement approaches and ways of thinking differently about their research project.

OBJECTIVE 3: *Deliver an integrated, two-way **knowledge exchange pathway** from excellent discovery research, through applied research, to exploitation and **impact**.*

A priority for the University is that our research activities and their outcomes are used to address and improve social issues and contribute to economic benefits. During this REF period we have improved the opportunities for impact through internal connectivity, embedding impact generation in the design and management of research projects, as well as targeting internal funding towards support for impact. RKE works closely with School Impact Coordinators to establish impact action plans and to implement a programme of activity for training and development.

To underpin research impact activities a **Research Impact Fund**, allocated from QR, was established in 2015/16 and has provided **£193k** to support researchers in increasing the reach and significance of their research, support collection of evidence to corroborate this activity and to assist with the development of impact from new research projects.

OBJECTIVE 4: *Expand our **partnerships** base across higher education, industry, and communities globally, and work with the **wider public** to co-create and expand the reach and impact of our research.*

Our **Industry Collaboration Director** drives the expansion of our external networks, making the University accessible for industry and ensuring we understand the needs of businesses, targeting areas of mutual interest around our 5 key themes to develop activities that align to the strategic priorities of both the University and our partners. Our **Public Affairs team** develops and maintains relationships with local stakeholders and policymakers, strengthening links with local government and public sector organisations. This includes identifying and communicating opportunities for our academics to contribute to policy consultations.

As a signatory to the **National Coordinating Centre for Public Engagement's manifesto**, we organise and participate in local and national festivals to engage the public in our research and encourage them to become part of our wider impact, e.g. **Manchester Science Festival** and **ESRC Festival of Social Science**. Our **University Festival of Research** was established in 2018 as an annual event that provides a platform to connect with the local community, involving them in our research and ensuring it generates beneficial outcomes for them.

OBJECTIVE 5: *Be an international leader and destination of choice for researcher training and career development, providing a supportive and inclusive research environment. Enable all to achieve their potential.*

In 2010, we were one of the first institutions to be awarded the **European Commission's HR Excellence in Research Award**. With renewal confirmed in 2018, we are one of only 8 institutions to retain this award for the maximum period of 8 years. Researcher training and development provision was revised in 2016/17 to provide a comprehensive range of support mechanisms for individual development needs. We have aligned this to our new career development framework for academics: the **Salford Academic** (see section 3).

Commitment to research integrity

The **University's Research Code of Practice** outlines our commitment to conducting all research and impact activities with the highest levels of integrity. To ensure effective governance, our activity includes:

- Administration of a suite of **research integrity policies** overseen by University Senate and Council and reviewed annually
- Publication of an annual report on research integrity practice, development, training and reporting, in accordance with the **UUK Concordat to Support Research Integrity**
- Management through RKE of **research ethics approval** via an online Ethics App: all staff with 'significant responsibility for research' (SRR) act as ethics reviewers, with training to support new reviewers, thus conveying a message of University-wide responsibility
- **Mandatory training** undertaken by all new starters (staff and PGRs) through a 2-part induction module on research ethics and integrity.

Supporting open access and open research practices

We believe that embracing a culture of open research is essential to achieving our institutional mission of industry collaboration and real-world learning. By providing unrestricted online access wherever possible to the full range of our research outputs, we aim to maximise their visibility, accessibility and use, helping to ensure they realise their potential to make significant academic, economic, social and cultural impacts. Provided by the Library, our support includes:

- **Open Access policy** (from 2015), requiring all in-scope research outputs to be deposited in the University of Salford Institutional Repository (USIR) and made open access (91% compliance for 2019/20). A recent revision (2019) requires ORCID identifiers for all authors and encourages the use of CC-BY licences. 100% of our current staff submitted to REF2021 have ORCID identifiers
- **Research Data Management policy** (from January 2016) encouraging open data sharing, including investment in a data repository
- Funding for **Article Processing Charges** (£35k-60k annually)
- Becoming a Signatory to the **San Francisco Declaration On Research Assessment (DORA)** in March 2019, to ensure we use metrics responsibly in research assessment. We are developing an action plan to translate these principles into everyday practice.

Clifford Whitworth Library supports access to USIR ensuring our research outputs are disseminated widely. Salford was an early adopter of a research repository (2007) and downloads

already exceeded 40,000 per month at the start of this REF period. During the census period outputs were downloaded 6.1 million times, according to Jisc's Institutional Repository Usage Statistics (IRUS-UK), placing USIR 9th in the sector for usage.

3. People

Staffing strategy and 'significant responsibility for research' (SRR)

Given the links between research and teaching at Salford, each new appointment is based on the joint consideration of research expertise and teaching contributions and the fit with current strengths or needs in both. The majority (91%) of our academics over the REF period have been employed on a 'teaching and research' contract, allowing flexibility for career development through specialised pathways: Research, Teaching & Learning, or Enterprise. Career development through these pathways has been formalised as our academic career framework, the **Salford Academic (SA)**, which was co-developed by HR and academics to enable parity of esteem across all pathways, with equal access to opportunities for development, recognition and reward.

As described in our **REF2021 Code of Practice**, our approach to determining staff with SRR involved two elements: research assessment taking into account quantitative information relating to the past REF cycle, alongside a development exercise of producing a forward-looking 3-year research plan. Although we are still in the process of formalising a policy on the use of metrics in research assessment, we considered examples of best practice during construction of our SRR process (e.g. the Leiden Manifesto), which led to the SRR assessment containing multiple quantitative indicators across a portfolio of activity supported by qualitative context and assessed through peer review. Staff have been identified as currently meeting the SRR benchmark (returned to REF2021) or designated as 'Next-Generation' researchers who are newer to research and need targeted support and development. The minimum SRR criteria have been aligned to the SA Research pathway and Schools have devised individual support requirements for their NG researchers to enable them to reach SRR level.

Our primary mechanism for resourcing research (via QR) is through allocation of research workload to academic staff. The new SA Research pathway and SRR process has enabled us to standardise this, ensuring that from 2020/21 all researchers are assessed against consistent, institutional-level criteria and all staff meeting this benchmark are allocated a minimum of 20 workload units to support research and impact-generating activities (where the majority of workload allocations sit between 95 and 105 units).

Commitment to inclusion and diversity

Since our academics, research staff and PGRs are at the heart of our research strategy, we are resolute in our drive to raise the standard of the research support and development we provide. Central to this work is our commitment to working towards a more inclusive research environment supported by HR policies around flexible working, recruitment and progression, wellbeing and our involvement in national equality charters.

The University joined the Athena SWAN charter in 2015 and was awarded Institutional bronze in 2016. Subsequently, 4 out of our 7 legacy Schools achieved Athena SWAN bronze awards and currently H&S and SEE are working towards new submissions: silver and interim bronze, respectively. The University is progressing with a submission to the Race Equality Charter (2021; delayed by COVID-19) and we participate in several national schemes to ensure our approaches are inclusive: we are accredited as a 'Disability Confident' employer, a long-standing member of Stonewall and a member of Inclusive Employers, a leading organisation for employers looking to build inclusive workplaces.

In REF2014, 32% of our submitted staff were female and across the University 24% of eligible women were submitted compared with 42% of eligible men. We are encouraged that our REF2021 submission comprises 41% women and that the gap between proportion of eligible men and

women included has decreased by 7% (31% eligible women compared with 42% men). Our gender pay gap for academic staff is 11.1% (median) and 9.9% (mean) (March 2019). The majority of submitted staff have been recruited in age ranges 35-49 (54%) and over 50 (40%) and within our Professors, 24% are female, 20% are from a BAME background, and the majority are over 50 (76%). We recognise there is still substantial work to be done to address systemic issues contributing to under-representation of staff with protected characteristics and are committed to increasing the diversity of our researcher community.

Staff development and training

Our approach to training and development is situated within the national context for researcher career development, ensuring we incorporate best practice, while maintaining an influence within UK and regional networks. Salford is the **Northwest hub for Vitae** and our Researcher Development Officer is the regional coordinator for the Northwest, with key input into the development of Vitae's international conference. We are involved in inter-institutional projects to promote a mid-career researcher mentoring programme, as well as PGR networking events. We further support specific networks, such as **UK Research Staff Association** and **The Technician Commitment**.

The **Salford Early to Experienced Career Research & Enterprise Training (SECRET)** programme offers a comprehensive package open to all researcher career stages and is aligned to the SA Research Pathway. External experts regularly contribute to the delivery of aspects of our programme to provide a range of perspectives and training in specific key skills. It is aligned with **Vitae's Researcher Development Framework (RDF)** and part of our alignment to the **Concordat to Support the Career Development of Researchers**, providing:

- **Technical workshops** covering quantitative and qualitative methods
- Support for the development of **grant applications**
- Research **impact workshops** tailored to differing levels of experience, from limited to significant
- Personalised support for research impact realisation over the long term through the guided development of an **impact action plan** (98 plans established during the REF period)
- Guidance on planning for dissemination of **research outputs** and publication strategies, including Open Access
- One-to-one **narrative mentoring sessions** with an external trainer from the **Royal Literary Fund**
- **Leadership development**, mentoring, confidence enhancement and coaching
- **Media engagement** and communication training.

Early career researcher (ECR) support, progression and retention

RCs are the primary drivers of our research activities and support, providing leadership and vision aligned to University strategy. These are inclusive structures bringing together academics, as well as research staff and technicians. As our number of fixed-term contract researchers is low (33 at the census date), it is more effective to provide support and development within these spaces instead of a cross-University initiative.

Our group of ECRs includes those who are new to academic research, having had successful careers outside of Higher Education. For example, from a clinical practice or creative background. To transition into research we provide support (research workload and a supervisory team) to undertake a PhD by published works. For new academics we have offered the **Vice-Chancellor's Early Career Research Scholarship**. This scheme provided bursaries of £1k-2k over 2 years, with additional research workload and a senior research mentor. It has supported 70 new members of staff and, excluding leavers, 75% of this group are included in this REF submission. During this REF period, 11 individuals supported in this way have been promoted: 8 to Reader and 3 to Professor.

PGR recruitment, training and development

The Doctoral School has overseen the formalisation of the PGR journey with a series of checkpoints and assessments now in place throughout the PhD programme and mandatory supervisor training for first-time supervisors with refresher training every 3 years. This has ensured a high-quality experience, as we have supported a **significant increase in the size of our community; from 503 PhD awards in REF2014 to 998 in REF2021.**

We deliver extensive training and development targeted to PGRs: the **Salford Postgraduate Research Training (SPoRT)** programme, aligned with Vitae's RDF. This is designed to help PGRs develop the skills for effective research as well as transferable skills to enhance employability, whether for a career in the public or private sectors, or in academia. The headline activity in the SPoRT programme is the **Salford Postgraduate Annual Research Conference (SPARC)**, run as part of our Festival of Research. SPARC enables PGRs and ECRs from all disciplines to become involved in organising events and presenting their own research in order to gain experience of conference participation.

Additional support during this REF period has included:

- Competitive, internally-funded studentships for prospective PGRs across all disciplines, including the **Graduate Teaching Scheme (GTS)** and **Pathway to Excellence** awards
- Funding to attend **international conferences**
- **English for Academic Purposes** and **Wordscope** for students whose first language is not English
- Funding for 10-12 PhD students each year to communicate research to schools through **The Brilliant Club** widening participation training scheme
- **PGR Wellbeing Concordat** based around core principles that improve accessibility to support and increase wellness awareness among key academic and professional staff.

4. Income, infrastructure and facilities**Research income generation**

Directed by our 2017-2027 Research & Knowledge Exchange Strategy, our approach to income generation follows our vision to **ensure research contributes meaningfully to global challenges relating to technological change and the effects of human activity on our environment.** In accordance with our Industry Collaboration principles, income generation is also aligned to our approach to partnership building, where we pursue relationships that are meaningful for multiple purposes, supporting research and innovation alongside education and employability. This enhanced focus on partnerships is realised through 2 mechanisms: new professional services roles (section 1; objective 4) and new governance.

To support the University in achieving our aims for the 2017-2027 strategy, a new institutional support mechanism was created in 2018: our **Strategic Funding Committee**. This brings together School ADRIs, Directors of Professional Services and RKE management, ensuring a University-wide perspective for strategic bids. Our first success was the award of the EPSRC CDT, which saw its first cohort of students join in 2019/20. This was followed by further success for the North of England Robotics Innovation Centre, part-funded by the ERDF (secured in 2020; funded 2020-2022).

QR supports income generation, either directly as grants for pump-priming and network-building, or indirectly through conference attendance. Resulting from this, and other support, our income across this REF period totals over **£44.6m** with an average of **£6.4m per year**. Nearly 60% of our income has been acquired from a combination of UK government, industry and other sources (**£16.2m**; 36%) and Research Councils (**£10.4m**; 23%). We have been successful in acquiring income from all 7 Research Councils, predominantly from EPSRC and NERC for key themes 1-4. In addition, EU programmes (e.g. Horizon 2020) have supported work aligned to our theme of

Creative and Resilient Communities. We have acquired funding from Innovate UK (£4.9m) to facilitate 41 KTP projects with industry partners. Our expertise in securing awards through schemes such as this extends back to the pilots in 1975. This forms a key part of our funding portfolio, given its alignment with our Industry Collaboration strategy.

Infrastructure and facilities

A key enabler for the University's RKE strategy is the quality of the physical assets on campus and we have continued to invest in new, state-of-the-art facilities during this REF period. The Campus Masterplan ensures our future campus will provide the necessary infrastructure to continue our excellent and innovative research in the coming years, allowing us to leverage external investment to translate our vision into reality. Investment during this REF period and the next 5 years includes:

Creative and Resilient Communities:

New Adelphi building (£55m), opened in 2016, with its 350-capacity theatre, large gallery space, rehearsal and voice acting studios. The facility supports research and creative collaborations for our Arts and Media Research Centre (AMCRC) and acts as a cultural hub for the city. Going forward, the Masterplan will enable us to fully realise the potential of our campus's cultural and heritage sites, such as New Adelphi and Salford Museum and Art Gallery, to create a creative gateway benefitting Salford and Manchester's creative scene and furthering AMCRC's agenda.

Industry 4.0, Energy, Housing and Infrastructure, and Sustainability and Environmental Quality:

External support from ERDF together with University strategic investment is supporting new facilities to be completed within the first phase of the Campus Masterplan (2020-2024):

- The **SEE building (£65m)** (work began July 2020). Opening in 2022, it consolidates the existing Science, Engineering and Environment facilities into one space to provide collaborative workshops and laboratories at the heart of campus, as well as enabling interdisciplinary collaboration across the new School
- **Energy House 2.0 (£16.5m secured in 2018)** opens in 2021 and builds on the success of Energy House, launched in 2011 as a unique facility for energy and sustainability research
- **North of England Robotics Innovation Centre (NERIC) (£17.6m secured in 2019)** opens in 2022 supporting engineering, computer science and health technology research
- Future developments include an **Acoustics building**, supporting acoustics and built environment, engineering and environmental science research.

Ageing and Biohealth:

- The **£3.2m Bodmer laboratory** and **£1.6m, 600m² Translational Medicine laboratory**, opened in 2015
- **The £525K Salford Genomics Facility**, opened in 2016, to establish DNA sequencing and bioinformatics capabilities
- Other investments include a **cardiac physiology laboratory**, three new **gait laboratories** and five new **psychology laboratories**
- Future investment includes **£1.5m in state-of-the-art radiography equipment** and a dedicated health robotics laboratory in NERIC.

University-wide facilities:

Salford's **MakerSpace** was created through external investment from Morson Group, an engineering recruitment company, to provide a means of promoting interdisciplinarity. This digital design and fabrication space has been crucial to the development of various research projects,

Institutional level environment template (REF5a)

e.g. live measurement of radioactivity in small mammals and creative writing using inclusive 3D-printing practices. It also supports the development of research impact and public engagement.