



**Heriot-Watt University  
SFC Outcome Agreement 2022/23**

**17 March 2023**

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## Statement by the Principal and Vice-Chancellor

I am pleased to confirm Heriot-Watt University's commitment to this Interim Outcome Agreement, covering academic year 2022/23, between the University and the Scottish Funding Council (SFC) on behalf of the Scottish Government. Despite the on-going impact of the COVID-19 pandemic and the economic environment, we have continued to focus on setting and achieving ambitious targets in relation to widening participation in higher education coupled with practical plans to deliver significant outcomes.

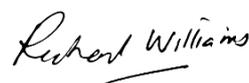
Through the last three academic years we have been impacted by the pandemic, but I believe that Heriot-Watt continues to be well placed to deliver our Strategy 2025, Shaping Tomorrow Together, launched in January 2019 and through to the end of the 25/26 academic year. This reaffirms our Vision and Mission, to be world-leading in all our areas of specialism and to create knowledge that benefits society, and sets out our values-led approach and ambitions for the years ahead around four themes that align well with the priorities of SFC and the Scottish Government:

- Building Flourishing Communities – our ambitions for growth of the vibrant, diverse and inclusive community of Heriot-Watt staff, students and alumni, with emphasis on the engagement of the University with the wider community in all our localities, and our commitment to maximise contributions to sustainable and inclusive economic and social development and positive environmental impact.
- Pioneering in Education – our commitment to continuing innovation, excellence and relevance in learning, teaching and the student experience, with emphasis on increased flexibility, international mobility, work-related and professional skills, all in the context of increasing digital delivery. Growth in diverse entry routes including continued expansion of graduate apprentice pathways remains a priority.
- Excelling in Research and Enterprise – our ambitions for major expansion in research capacity and reputation by leveraging our strengths in fundamental research with interdisciplinary approaches, strategic partnerships and focus on key business and industry sectors; coupled with fostering and enabling the culture and eco-system of dynamic enterprise among staff, students and partners.
- A Global, Connected University – our intent to enhance the effectiveness and efficiency of our organisation through increased collaboration and connectedness, internally and externally. Providing further international opportunities for students is a key distinctive element of the University and this is especially relevant as we partnered with the Scottish Government in the 'Expo2020' hosted by Dubai which started in October 2021.

Our mission is influenced by our heritage as the world's first Mechanics Institute, established in 1821 to provide the knowledge and skills necessary for emerging industries in a growing economy. We remain true to this heritage but have transitioned into a multinational organisation (62% of our turnover is transacted in the UK, 23% in the United Arab Emirates and 15% in Malaysia), well placed to drive economic growth and address social challenges through educating the future workforce, advancing research, building global collaborative partnerships and commercialising technology. Our international positioning imbibes a diverse culture in our teaching, research and impact across the University. We operate a global widening access policy and in 2021/2 over 28% of our students entered the University as a result of a direct access intervention we made.

This Interim Outcome Agreement is focused on the University's activities in Scotland in 2022/23. It illuminates the distinctive contributions Heriot-Watt continues to make to the economy and society, and the real benefits we offer to students, businesses and the many other partners we work with, in Scotland and beyond. Despite the considerable impacts of the pandemic, we continue to navigate through a challenging environment and take forward our strategy for the period to 2025, and I am confident we will further enhance our engagement and impact.

Professor Richard A Williams, OBE, FEng, FTSE, FRSE  
Principal and Vice-Chancellor



## Consultation

There has been broad consultation on this interim Outcome Agreement across Heriot-Watt University. The Deputy Principals for Education & Student Life, Research & Innovation, and Enterprise & Business, together with leaders of Professional Services, are closely involved in relevant sections. In addition, there has been substantive discussion and formal approval of the draft Agreement by both the University Executive and the Court.

## Outcomes for Students

### Fair access and transitions

Heriot-Watt continues to be responsive to inclusion and wider access. We maintained the proportion of our entrants from SIMD20, at 11.6% in 2021/22. However, we are seeing a significant decline in 2022/23, to around 10.5% and also a reduction in our college articulating students. These have been impacted by both COVID-19 and the current cost of living crisis, as school and college leavers choose a buoyant employment market rather than further or higher education. The impact of remote learning over the last two years has proved particularly challenging in the college sector, and we have seen associate and articulating students alike struggling to complete their HN qualifications in the same numbers. Evidence suggests that this will continue to impact over the coming years, with local college partners reporting a significant reduction in recruitment year on year.

We are pleased to be able to return to face-to-face engagement, particularly for support and widening participation work, whilst keeping some of the more useful touchpoints introduced in response to the pandemic. Our programme of enhanced engagement for vulnerable groups continues, with one-to-one contact with care experienced and estranged students; group coffee mornings/afternoons for young and adult carers, and the introduction of Wellbeing ambassadors to encourage engagement and support from peers as well as staff. Pre-entry transitional workshops for widening participation students are also now in person and tailored to support Widening Participation (WP) students through enhanced online registration, induction and engagement. Workshops for advanced entry students into our School of Textiles and Design enable HNC/HND students to get used to materials, machinery, screen-printing etc in a supportive environment, without the pressure of trying to keep up with peers.

Our secondary school work now focusses on our local communities, and more targeted engagement with third sector and community organisations. We have extended our initial project to improve STEM engagement at an early age to include a number of local secondary schools and their feeder primaries, improving both STEM engagement and transitional support. Examples include tailored on-campus visits for pupils from Woodlands School, an additional support needs school, and a new project with Harmeny Education Trust who work with care experienced young people providing residential care and education.

We continue to support all partnership programmes in their efforts to provide additional support including LEAPS, SWAP, SCiP Alliance Scotland and the Hub for Success. This year we will also begin work on a four-year project, supported by the University's Mary Burton Fund, to target the growth of women into STEM through engagement with school pupils through both primary and secondary school engagement.

Working with partners in the East of Scotland Regional Forum (ESRF) and the continued development of the Pathways App, we continue to provide tailored information, advice and guidance (IAG) to college students. The University believes this should be supported at national level by all interested parties to improve IAG and availability of information for all FE and HE institutions, not just those within the partnership.

This partnership has proved invaluable when engaging with the SQA's HN Next Generation project to redesign the HN qualification suite. The University is actively taking part in the SQA pilot projects. Whilst it is very positive to see the emphasis on employability and core skills, there is a concern that there is a lack of focus on content with regards to articulation, and very little detailed engagement with HEIs on the content and structure of the individual qualifications. We remain concerned about a lack of engagement with some professional bodies with regards to accreditation. In particular the lack of transparency regarding content of pilot programmes in a timely fashion will affect the student's ability to achieve a university place this year and, in turn, affect HEIs ability to achieve SFC articulation targets.

The transition from school to university continues to be particularly difficult for students given

continued influence of the pandemic and the amendments to exams and course content. We have started to recognise a change in the preparedness of school students moving into university, particularly in STEM subjects and their knowledge of laboratory and academic skills and other key content. We continue to provide revision sessions to try and support these students and have seen a year on year increase in the number of first year students accessing the revision modules in Maths produced by our SCHOLAR programme and our Heriot-Watt Maths Gym.

We remain concerned about the large numbers of students who have been disadvantaged by the ongoing effects of the pandemic, coupled with the current cost of living crisis, and who are either unreachable / unidentifiable due to current measures or who have disengaged with local and national WP partnerships. We continue to assert that existing government measures of disadvantage, such as SIMD, are not robust enough to quickly identify those learners who become widening access learners due to the pandemic. Students are feeling compelled to go into employment rather than education, and the drastic reductions in family income and circumstances are hitting more and more WP students, not just those who have suddenly become carers due to COVID-19. We continue to investigate ways to identify and support these groups and would encourage national bodies to do the same.

## High quality learning, teaching and support

2022/23 is now the fourth year of implementing the Learning and Teaching Strategy (LTS) 2025, with its vision of Inspiring Learning, a focus on the Heriot-Watt Graduate and three key priority areas (Curriculum, Teaching, Assessment). The Learning and Teaching Strategy supports the Pioneering in Education theme of the institutional Strategy 2025. The University agreed to a pause in much of its learning and teaching strategic transformation in the latter part of 2022 in order to provide sufficient time to focus on a number of pressing operational issues emerging from the transition out of the pandemic and the return to on-campus provision

As regards learning and teaching strategic developments, a significant period of time has been devoted to a Review of the Academic Architecture, as the University looks to modernise the structures of both its academic year and its programmes in order to deliver Strategy 2025's strategic ambitions, including providing new pathways into the University, and to address some of the current challenges associated with a framework which is now 15 years old. At its meeting on 16 June, the Senate approved a revised structure of the academic year to be implemented in two phases, from 2022/23 and 2023/24 as follows:

### September 2022

- Three blocks of 12 teaching weeks
- Formalisation of Consolidation Week
- One week later start to teaching in January
- April student vacation of two weeks (rather than current three)
- Reassessment/Assessment diet to start in early August

### September 2023

- Shift from four weeks to two weeks for April assessment period
- Five days of resits (usually seven; ten in August 2022)
- Review of reassessment to be conducted after 2023/24

The programme architecture aspect will be resumed from January 2023, aligning with developments related to our Global Changemaker curriculum framework.

As part of the same integrated change initiative, the University has been considering how to recognise and reward the extra- and co-curricular activities of all students, at all levels via a project called the Heriot-Watt Award. As well as supporting the personal and professional development and aspirations of Heriot-Watt students, it is intended that the Award will provide a framework for

enabling graduates to articulate more successfully their skills, qualities and experiences to employers. At the present time, the University is scoping out the type of framework and system which would best support the Heriot-Watt Award.

In each of the three key priority areas, the University Committee for Learning & Teaching (UCLT) approved the underpinning principles for: Global Changemaker Curriculum Framework and for Transforming Assessment. Building forward from the pandemic experience, approval was also given for a refreshed teaching approach, developing our 'responsive blended learning' model into a future-looking 'globally connected learning' approach. A refresh of the Heriot-Watt Graduate Attributes has been undertaken, reflecting the institutional focus on purpose-led education.

Through AY22-23, practical resources and support are being introduced to support teaching teams to embed enhanced practice across curriculum, teaching and assessment.

- The HWU Curriculum Framework links our refreshed graduate attributes and commitment to purpose-driven, globally-connected learning directly to the course and programme development process. Enhanced support for curriculum design is being introduced, framed around the Global Changemaker Curriculum Framework and delivered in the form of a practical toolkit of support for teaching teams developing or refreshing their taught provision.
- Practical support for assessment design focuses on assessment for learning, ensuring assessment is meaningful and connected to real-world impact.
- Innovation in assessment is being championed alongside a focus on promoting academic integrity. A multi-faceted pan-institutional programme of work is driving an integrated approach to strengthening academic integrity, building study skills support, enhancing assessment design, and deterring cheating.
- Enhancement of our staff development offer is focused on amplifying support for educational leadership, including refreshed support for course and programme leaders and sharing practice on working collaboratively as global teaching teams. This compliments the ongoing work to strengthen career-wide support for colleagues involved in teaching.

The Senate provided its first annual assurance statement for the Court and its Audit and Risk Committee, confirming the effective management of academic risk in relation to the quality and academic standards of learning and teaching, the student learning experience and responding to student views.

The University's approaches to managing, assuring and enhancing quality were discussed with QAA Scotland (QAAS) at the two Institutional Liaison Visits on 2nd and 8th September 2021 and on 23rd and 30th March 2022, with further discussions at the next set on 2nd and 9th November 2022. The overall visits were positive, noting HWU's effective, global approaches and its systematic approach to addressing issues, including its comprehensive ELIR4 Action Plan. QAAS discussed with HWU the following key themes, which are being progressed in 2022/23:

- Ongoing implementation of the Learning and Teaching Strategy, noting the forthcoming strands on curriculum and assessment
- Transition out of the pandemic, returning to campus and hybrid approaches, with a focus on providing more community events for students
- Progress towards national Enhancement Themes, particularly in the areas of the PGR and PGT student experience
- Addressing ELIR4 recommendations, noting that there remained key actions related to the PGR student experience (proposed additional staffing currently under consideration) and identifying students at risk of disengagement (now being addressed through the Data and Insights Platform and plans for a new institutional Retention and Student Success Strategy)
- HWU developing its new process for Professional Services Review aligned with the outcomes of QAAS' Focus On theme

- The proactive active approach being taken to address the increase in academic misconduct cases
- The introduction of a Learning and Teaching Strategic Transformation Operational Plan, bringing together all key initiatives into a single tracker document, providing a mechanism for more effective management and implementation

As the impact of COVID-19 continued across all of the University's provision, it remained critical to ensure that key quality processes continued, albeit in an adapted format, so that the institution could provide internal and external reassurance of steps taken to assure and indeed enhance quality, academic standards and the student learning experience.

### Partnership, participation and student experience

Heriot-Watt University continues to be particularly effective in, and recognised externally for, improving student engagement and partnership in collaboration with students, with sector-leading developments such as: position of School Officers; Student Oscars; representation across multi-campus locations. This engagement and partnership is exemplified by the single Student Partnership Agreement between the University and the three Student Representative Bodies in the Scottish, Dubai and Malaysia Campuses.

The University's partnership working with students was commended in the ELIR Review, November 2020, and the University chose to showcase this at the sector-wide "ELIR: Sharing Good Practice" event at The Quality Forum in April 2022. In its initial report (May 2022) on the University's application for federal accreditation at its Dubai Campus, the CAA highlighted as a key strength the University's student-centred approach and exemplary engagement of students as co-creators of their learning environment.

In view of the University's poor performance in NSS 2022 (70% overall satisfaction, down from 79.3% in 2021, leading to a position of 107 and bottom quartile in the UK), a separate NSS Taskforce Group was established in order to manage the institutional and local response in 2022/23 across four thematic areas:

- Assessment and Feedback on Assessment
- Student Voice
- Learning Community and Wider Student Experience
- Organisation and Management

A series of short-term measures ensured that immediate issues were addressed prior to the start of AY2023/24, such as: clarifying roles and responsibilities in Schools; raising staff awareness of key academic policies; timely return of feedback on formative assessment; introduction of a "You Said, We Did" mid-semester survey and response; timely allocation of Personal Tutors. By the end of Week 2 of teaching, all Schools confirmed that these actions had been taken.

In addition to the four institutional themed action plans, all Schools, relevant Professional Services and the Student Union produced their own action plans, with actions categorised according to the four institutional themes. These were monitored weekly (and then fortnightly) by the NSS Taskforce, with regular updates provided to key institutional committees including the Court, the Senate and the University Executive.

The University's survey process and schedule have been substantially revised for 2022/23, with the introduction of PowerBI Dashboards and internal surveys, such as the Early Experience Survey, Course Experience Survey and Annual Student Survey now providing more effective tracking for key themes (and for NSS). Beyond the immediate actions taken in September 2022, the following enhancements have been introduced or are in the process of being introduced in 2022/23 in response to student surveys:

- Class reps training provided by sparqs and Teams Sites for Class Reps
- Programme Directors' Toolbox
- Increased visibility of student representatives on campus and increased communication of actions taken in response to student voice
- Improved communications to staff and students
- Defining HWU as a responsive, student-centred institution
- Review of Professional Services' support for Schools in academic administration
- Review of Personal Tutoring
- Support and development for School leadership roles

The NSS Taskforce was deemed to have concluded its remit by end of February 2023. Consideration of student surveys/student voice and actions will continue to be routed via the UCLT and its groups, but in order to provide a more focused, dedicated forum for this, the Student Experience Group will be reconstituted as the Student Experience and Satisfaction Group and will be jointly chaired by the Global Chief Operating Officer and the Deputy Principal (Education and Student Life).

In 2022/23, there has been a particular focus between the University and the three Student Representative Bodies on enhancing student engagement, as the institution transitions out of the pandemic modes of operating; there are two notable actions. Firstly, the Student Partnership Agreement has been rephased to a calendar, rather than academic, year, enabling the incoming Sabbatical Officers to have a set of initiatives to focus on at the outset and to provide continuity between one set of Sabbatical Officers and the next. Key initiatives for the 2022/23 SPA include:

- Student engagement in designing student guides on assessment feedback
- Revised policy on use of recordings
- Expanded procedures for mitigating circumstances
- Improved, accessible resources highlighting the importance of Academic Integrity.
- increased School support for the co-curricular activities of Academic Societies to improve our student-staff communities.

The second noteworthy initiative is Change Week, an innovative Student Voice project which has been running in February/March 2023, where students were asked 'Watt One Thing' they'd change to improve the Heriot-Watt student experience. Over 400 individual responses from students on four campuses, which boiled down to over 70 unique ideas. All ideas were compiled into Change Week Action Tracker, and students will be regularly updated on progress towards the enhancements they suggested. As part of Change Week, the first ever 48-hour Change Hackathon was held, where teams of up to five students were invited to come together and design a solution for change for one of the top five ideas submitted by their peers. The winners were Team WattZone, who created a plan to improve student space on the Dubai Campus, which is now under consideration by senior staff.

### [Support for students through induction/transitions](#)

Heriot-Watt Induction programmes are offered to all new students during the University's Welcome Weeks (at the start of each semester). This is a programme comprising University wide, campus specific and subject specific elements. We recognise that this is the initial learning and teaching experience of Heriot-Watt and can prove vital in shaping students' initial perceptions and expectations of university and helps them to start to build social networks and a shared identity with their fellow students. As we have moved to a post-pandemic position, the mix between online and in-person activities has shifted to being predominantly in-person.

As soon as students enrol online, they are automatically allocated to a site on the University's Virtual Learning Environment (Canvas) which is specific to their subject, campus and level (UG or

PGT). Through this, students can start to access and use vital resources for study, and information about support available to them and about wider student life. Each student will also have an induction programme delivered in their subject area comprising common elements (icebreakers, personal tutoring, hints and tips from current students, orientation) as well as subject specific content. There are also focussed induction and transition activities aimed at students from a Widening Participation background and for direct entry students.

For 2023-24 the University is further developing its VLE induction resources as well as working on a common framework for longitudinal (extended) induction. The induction infrastructure on our VLE is also used to support the re-enrolment and transition of continuing students to subsequent stages of their degree programme.

### Student mental health and wellbeing

The University has a well-integrated Student Wellbeing Service which delivers a range of individual support sessions, counselling, wellbeing activities and supportive resources to all students. The system operates a 2 tier system, whereby students can access same day guidance via Drop In sessions with Student Success Advisors, Counsellors and Disability Advisors, or they can arrange appointments via the student portal booking system. Students also have access to informative wellbeing workshops, which cover a range of topics designed to promote positive mental health, engagement and student experience. The University has also invested in the Feeling Good App, and Togetherall, which deliver 24/7 guidance for students who are experiencing mental health challenges.

The expected removal of the SFC funding for additional counsellors after academic year 2022/23 will present a significant challenge in how the service is resourced to meet increasing student demand.

### Learning with impact

A key element of the UCLT terms of reference is “attainment” and, therefore “good degree classification” is monitored via the Learning and Teaching KPIs. In March 2022, the Committee considered the most recent data set on “good degree classification”, particularly in relation to attainment across diverse student groups.

The March 2022 analysis highlighted that the overall summary related to “Good Degree Classification” was positive and demonstrated that grade inflation (a current topic in the UK media and for the OfS in England) was not an issue at Heriot-Watt, as confirmed by the fact that this was not raised as an issue in External Examiner Reports. The most recent data shows a percentage of 81%, representing more of an alignment with pre-COVID-19 levels and demonstrating the effectiveness of the Academic Safety Net in maintaining academic standards.

The percentages of Firsts, 2.1s and enhanced first degrees had been broadly level but with a notable rise in 2019/20, in line with the wider sector. In addition, the more recent data places Heriot-Watt in the middle of the sector when ranked with other Scottish HEIs. The one-off, more substantive increase in the percentage of “good degrees” for the 2020 graduating cohort was comparable with the rest of the UK sector, reflecting the concern to mitigate the impact of the pandemic.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
% Good Degree	74	76	77	78	78	79	86	81

Heriot-Watt continues to engage in Scottish and UK sector-wide consideration of grade inflation. Such engagement is facilitated primarily by the Deputy Principal (Education and Student Life), who has recently concluded his term on the Scottish sector representative on the UK Standing Committee for Quality Assessment (UKSCQA) and as Chair of the Scottish sector’s Quality Arrangements for Scottish Higher Education (QASHE) Group, but remains actively engaged via

Universities Scotland Learning and Teaching Committee and via the QAA UK Board.

The University has continued, for a third academic year, with its Academic Safety Net and supporting procedures as a means of ensuring that the 2023 graduating students will be neither overly advantaged or disadvantaged due to the situation, and has taken steps to support all of its Boards in managing potential grade inflation, via briefing sessions, guidance and 5-year data sets.

The Learning and Teaching Strategy 2018-2025 confirms the institutional commitment to “employability”, with the aim that by 2025, the Heriot-Watt Curriculum will be Globally and Locally Applicable; Research-Informed; Professionally and Practically Relevant. The Heriot-Watt Graduate Attributes, which have recently been refreshed, are core to delivering this strategy. In addition, the University’s seven-year strategic plan, Strategy 2025, highlights the institution’s commitment to develop resilient, emotionally intelligent and future ready graduates who are highly sought after by employers.

The Careers and Graduate Futures division is transforming the provision of a professional, high quality careers guidance and information service and is collaborating with academic staff on curriculum design. Service Level Agreements (SLA) have been established with each School to support the development of careers and employability throughout the student journey at Heriot-Watt, with the aim of engaging our students to develop the skills so that they develop self-efficacy and can compete to secure a graduate job and contribute to society.

An online 360° careers platform provides all students with access to a wealth of online resources to support career decision-making, planning and how to compete in the job market. The InPlace platform, which was also introduced this year, has enabled more efficient management of the increase in placement students and the associated processes of managing the placement.

The service joined a collaboration with nine other Scottish universities to allow our disabled students access to specialised services and support provide by EmployAbility. COVID-19 meant that most of the services were delivered online, with an increased move to offering students the choice of online and face-to-face appointments. The annual Careers Fair was offered on campus and repeated online, with significantly more students attending the on-campus fair.

Careers and Graduate Futures continued to work collaboratively with Development and Alumni to develop the services available to early graduates (up to two years after graduation) with an annual year of events and one-to-one appointments. The service also participated in the Graduate Career Advantage Scotland scheme to provide unemployed and underemployed graduates with access to paid internships.

Heriot-Watt continues to perform strongly in terms of graduate first destinations for UK-based undergraduate students. In 2016/17, 95.5% of our full-time, first-degree graduates were in employment or further study (placing Heriot-Watt at 12th in our UK benchmark group, and 6th in Scotland), with 79.3% of those who are in employment being in graduate level employment (up from 76.3% in 2015/16, placing Heriot-Watt as 2nd in Scotland). With the change to the Graduate Outcomes Survey, Heriot-Watt’s figures for 2019/20 leavers (UK Undergraduates) show that 79.1% are in a positive destination, with 69.1% in professional employment. The University’s key Strategic Performance Indicator within Strategy 2025 is to be in the top decile for Graduate Outcomes.

## Equalities and inclusion

Heriot-Watt makes sure all our Public Sector Equality Duty and BSL requirements are adhered to with information available on our dedicated webpages<sup>1</sup>. The webpages includes information relating to UG student intake by protected characteristic. Oversight of our global Equality Diversity

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<sup>1</sup>HWU Equality webpages: [www.hw.ac.uk/equality](http://www.hw.ac.uk/equality)

and Inclusion (EDI) activities is remitted to the Global Equality, Diversity and Inclusion Committee. Work is underway to support improved EDI embedding into everyday activity.

The University continues to take forward work to delivery our Equality Outcomes (EO). Published in April 2021 our Equality Outcomes outline EDI priorities across the University community. They include EOs that impact directly on the student community:

**EO 3:** Reduce UG gender imbalance in target subject areas

**EO 4:** Support ending gender-based violence and achieve White Ribbon Status

**EO 6:** Implement SFC Racism on Campus Project recommendations

**EO 7:** Identify and reduce any ethnicity award gap

**EO 9:** Increase recruitment of Deaf UG students

**EO 11:** Establish an annual Student/University EDI Summit

**EO 12:** Measure culture change

These EOs demonstrate our commitment to quantifiable impact and tangible change. The University's Learning and Teaching Strategy 2018-2025: Inspiring Learning, sets out the strategic ambitions of Heriot-Watt University over a seven-year period, and is aligned with the Pioneering Education strategic theme within the University's Strategy 2025.

Our Global Access and Inclusion Strategy incorporates widening participation and outlines our strategic ambitions for access and inclusion across the following areas:

- Fostering student aspirations
- Inclusive recruitment and admissions
- Supporting student success

In supporting students to have the best possible experience, Heriot-Watt provides a range of advice and support for students on all kinds of issues including settling into university life, money, accommodation, disability and personal safety. Student Support also provides support and counselling services.

An Equality and Privacy Impact Assessment (EPIA) is required throughout the University with work underway to support access to completed EPIAs.

# Outcomes for Research

## Research Excellence

### Global impact

Our Global Research Impact continues to provide solutions to challenges and making an impact both nationally and globally, as reflected in our submitted case studies. The Research Excellence Grant enables us to embed a societally impactful research culture into the institution to enable impact the areas identified as of strategic importance to Heriot-Watt University, which also have strong links to the UN Sustainable Development Goals, including Net Zero, Robotics, AI and ICT, Medical Technology, Blue Economy, Smart Construction, Quantum Technologies

#### **Case Study 1**

##### **Project Title: Revolutionising Construction through sustainable innovation**

#### **Project Overview**

Kenoteq is a clean-tech company which is spin-out from Heriot-Watt University, founded on research, focused on the creation of advanced, cost-effective building materials, that has led to the production of the award winning “K-Briq”.

#### **Activities, Outputs & Outcomes**

The K-Briq is Kenoteq’s first product with huge potential to help the building industry reduce waste and create a sustainable circular economy. Unlike conventional brick production, which uses clay baked at high temperatures in kilns that mainly use fossil fuels, the K-Briq is made from 90% recycled construction and demolition waste, including bricks, gravel, sand and plasterboard – and is air dried. It produces just a tenth of the CO2 emissions of a traditional fired clay brick and requires less than a tenth of the energy in its manufacture. K-Briqs are stronger and more durable than fired clay bricks and provide better insulation too.

With around 32% of landfill waste in the UK coming from construction waste, and 45% of the total UK carbon emissions coming from the construction, the sustainable K-Briq is an exemplar circular economy product.

The K-Briq won the STEM Research Project of the Year at the prestigious Times Higher Education Awards 2020. It is also currently shortlisted in the Scottish Environment Business Networks 2022 VIBES Awards in recognition of championing sustainability through the development of the K-Briq. More recently the K-Briq won the 2022 Dezeen Sustainability Award for Sustainable Design of the year category.

#### **Impacts**

Early next year, the business will open a new production facility onsite at a waste recycling facility in East Lothian, processing around twenty tonnes of commercial construction waste daily, which will then be turned into new bricks. Professor Gabriela Medero, Associate Principal for Enterprise at Heriot-Watt University and co-founder of Kenoteq said:

*“The K-Briq has successfully driven ‘sustainability in construction’ into the public consciousness and we are now working in partnership with the construction, architectural and design industries to support their shared ambitions in the drive to net zero. We’ll shortly be rolling out production from our new facility just outside Edinburgh and we hope to scale up operations across the UK in future years.”*

## **Case Study 2**

### **Project Title: Preventing and mitigating child poverty and inequality**

#### **Project Overview**

Almost one quarter of all children in Scotland are living in poverty, the effects of which are considerable, undermining health, wellbeing and educational attainment. As well as being harmful to children and families, child poverty has wider costs for society. Research carried out by Professor Morag Treanor has had a sustained impact on child poverty and has led to changes across legislation, local authority policies, planning and practice, the practice of health and education professionals and the campaigning and influencing of third sector partners.

#### **Activities, Outputs & Outcomes & Impacts**

Professor Treanor's research was instrumental to the strengthening of the Child Poverty Act (Scotland) by ensuring the inclusion of priority groups and areas such as lone parents, education and income maximisation. Research into 'Healthier Wealthier Children' (HWC), a programme in Glasgow to maximise the income of new parents who may have had no prior entitlement to benefits, and which resulted in cumulative gains in benefit uptake and money advice referrals in the Greater Glasgow area alone, led to the inclusion of income maximisation in the legislation at the point of pregnancy and childbirth.

It also led to the roll out of HWC to the rest of Scotland, an action from the Child Poverty (Scotland) Act 2017, Professor Treanor's longitudinal qualitative research with families influenced the Scottish Government decision to introduce an income supplement of £10 per week per child for low-income families, announced in the 'Tackling child poverty delivery plan 2018-2022'. This is expected to reach over 400,000 children in Scotland, lifting 30,000 children out of relative poverty.

Professor Treanor's engagement with practitioners and professionals has led to changes in professional practice. It led to the development of a 'Child poverty, health and wellbeing' eLearning module for use in the initial education of healthcare workers. Professor Treanor's involvement encouraged NHS Health Scotland to include education professionals into their work on child poverty

#### **Impacts**

As a direct result of Professor Treanor's work, approximately 120,000 children annually who are living in poverty across Scotland now have access to a £100 school clothing grant and, in several local authorities, access to free meals in breakfast clubs and during school holidays. In addition, services have been introduced to ensure the uptake of child-related benefits to maximise the incomes of families, in schools and at the point of pregnancy and birth via health services.

Professor Treanor's research with educational professionals has resulted in a film used by Scotland's largest teaching union, the Educational Institute of Scotland (EIS), to educate teachers on the costs of schooling and the barriers to full participation in education for children and their parents living in poverty.

## **A vibrant and connected research environment for excellence and impact**

Our unique research environment in Quantum & Photonics resulted in Heriot-Watt being awarded the Queens Anniversary Prize in 2022, in recognition of Heriot-Watt's ground breaking research in the advancement of photonics technology. Additionally, in a UK-first, we are leading a new project to explore the mysterious properties of magnetism using a novel quantum sensor. Researchers from our Institute of Photonics and Quantum Sciences (IPAQS) have been awarded £2million by the Engineering and Physical Sciences Research Council (EPSRC), to create a state-of-the-art Quantum Magnetometry Facility at the Edinburgh campus. The facility will host a quantum magnetometer that is unique to the UK, and one of only a handful found anywhere in the world.

We continue to lead on ground breaking research projects. This includes a £1.3 million project to establish if robots could be used to help humans build lasers. The project aims to discover if robots could be used to carry out some of the most repetitive and time-consuming assembly and alignment steps in the manufacturing process, which would then free up humans to concentrate on the important testing and quality-control steps. Leading research in finding solutions to achieving net zero led to a \$2M funding award from the to explore materials that can remove carbon dioxide (CO<sub>2</sub>) from the air and can drastically reduce the energy intensity and cost of the Direct Air Capture (DAC) process, so that it can scale rapidly and contribute to fighting climate change.

### Building partnerships and academic capability to support impact

We continue to grow our strategic partnerships with business, which have resulted in new research partnership with PETRONAS to jointly develop cost-effective technologies to produce hydrogen from biomass waste, in line with both organisations' aspiration for a carbon-neutral future and a circular economy. The £1M research project is a collaboration under PETRONAS Centre of Excellence in Subsurface Engineering and Energy Transition (PACESET).

The National Robotarium has been launched, with an established of a team of Impact Engineers, Project Managers and an outreach team now delivering activities and growing industry engagement, which has led to a major applied engineering and research collaboration with multi-billion dollar company Tata Consultancy Services (TCS). Utilising expertise from both Heriot-Watt University and the University of Edinburgh, TCS Research will collaborate with the world-leading National Robotarium to create innovative solutions to global challenges using cutting-edge robotics and AI research, product design and new technology creation. We also forged a partnership which aims to fast-track innovation in medical and healthcare technologies and better understand clinical and nursing needs in Scotland with InnoScot Health. The five-year agreement will see the Medical Device Manufacturing Centre (MDMC) collaborate with InnoScot Health to help bring new ideas and innovations from healthcare professionals to life.

## Research sustainability

### Celebrating a vibrant research culture

In our commitment to develop a vibrant research culture we signed up to the Knowledge Exchange Concordat, established a Research Culture Committee, and invested in dedicated support to build a programme of activities to support our academic community in their research. We have also appointed Associate Principals for Impact and for Research Culture and People; these roles will help deliver the University's Excelling in Research and Enterprise strategic theme.

In partnership with the universities of St Andrews, Edinburgh, Heriot-Watt, Glasgow and Strathclyde, we have undertaken joint impact related activities. This has included organising our fourth annual Impact Festival, comprising a day of learning, connection and stimulating dialogue on impact-related topics. This event is primarily aimed at Early Career Researchers (ERCs) and external stakeholders, who benefit from training and knowledge exchange from academics, industry and other practitioners

### Excellence and impact – strategic investment in critical mass

Addressing global challenges and building on our research strengths in Net Zero, Healthcare Engineering we continue to develop our Global Research Institutes in these areas, to ensure we are responsive to global challenges and attuned to the needs of our local communities and places.

We have increased the University's Business Development Team across our talent and Research & Development (R&D) focused areas. Our activity going forward will focus on strengthening industry partnerships aligned with our research strengths in robotics and autonomous systems via the National Robotarium; earth and marine sciences via the Lyell Centre; health and care engineering, building on initiatives such as the Medical Device Manufacturing Centre; net zero and energy transition for leveraging research strengths from across the University.

REF21 resulted in 86.8% of our overall research and 88.6% of research outputs being classed as

'world-leading' (4\*) and 'internationally excellent' (3\*). We were top in Scotland for world-leading (4\*) Physics research, which also came top in the UK for world-leading research outputs and saw 97% of its research classed as world-leading and internationally excellent. Our three joint submissions with the University of Edinburgh - in Mathematical Sciences; Engineering; and Architecture, Built Environment and Planning - were ranked in the top four in the UK, based on the quality and breadth of the combined research, as defined in the Times Higher Education REF Power rankings.

We were recognised for some outstanding impacts, particularly in relation to policy and inclusivity, in the area of marine ecosystem and commercialisation but overall, we noted the sector moved more quickly in terms producing high-quality impact.

On reflection of our REF21 results we have developed a comprehensive programme to enhance our impact led research & enterprise culture. This includes investment in our Global Research Institutes and focusing on continuing to build a vibrant research culture, with a focus on research integrity, research recognition, collegiality and research careers.

### Supporting researcher development

To reflect our commitment to Research Integrity Concordat and in recognition of delivery of our EDI ambitions the Global EDI (GEDI) Committee has been established to provide EDI leadership across the institution and to oversee delivery of all EDI-related plans and commitments.

Recognising that the research-related work of researchers may have been negatively impacted by the COVID-19 pandemic, the University's Researcher Recovery Fund continues to help support researchers who have been affected regain their research capacity, momentum and visibility and to assist our research community adapt to a new, post-pandemic research environment. The Researcher Recovery Fund forms part of Heriot-Watt's renewed focus on the enhancement of Research Culture.

Our Primary Investigator (PI) Development Programme, focussed on Getting Grant Funding, continued to run, enabling a cohort of researchers to gain practical skills in writing funding bids, with peer and professional support and feedback and incorporates workshop sessions on writing Horizon Europe funding bids.

# Outcomes for Economic and Social Renewal

## Responsive institutions

Our Recovery Prospectus was published in autumn 2020, and this prospectus continues to highlight the University's role in social and economic recovery. It places collaboration, partnership and accelerating commercialisation at the heart of our approach, drawing on our research strengths and supporting our students, researchers, businesses and communities to recover and prosper.

It sets out the following commitments:

- Build a global net zero network
- Develop and exploit the capacity of the National Robotarium
- Build a new medical technologies cluster
- Create a research focus on a fairer inclusive society
- Focus on the skills and expertise required for the future
- Align our teaching portfolio to support economic growth
- Support upskilling through flexible lifelong learning

## Skilled Workforce

We have continued to use the Upskilling Fund to meet demand of businesses. This year have supported more than 400 learners through these funds. We have spent £536,990 on delivery of courses to eligible learners. We have introduced new courses in Digital Transformation in response to demand from industry. These courses have had huge demand from a wide range of sectors, both public and private, and account for nearly half of the funding this year. The courses in Digital Transformation are new to the University and have been developed to meet demand from employers, and can be used to claim exemption from similar courses in a new MSc programme.

### **Case Study – Supporting Energy Companies**

Energy companies have a huge role to play in the drive to net zero, including the transition to renewable energy. In addition, understanding the usage of energy through development of methods to analyse the data to support transition, load balancing and economics is an essential step in the transition. In this project we have supported employees through NTTF funding to develop the skills and knowledge to understand energy in the 21st Century, where the skills requirements range from understanding the energy needs, the economics that drive energy and the barriers to renewable energy, and the data that will allow a better understanding of energy usage and demand.

The University is fully committed to the Fair Work agenda. As signatories to the Scottish Business Pledge, all individuals who are engaged directly by the university are paid at least the Voluntary Living Wage and we work closely with our UK trade unions to maintain a transparent and robust grading system within which all staff are engaged. Our Strategic Commitment to putting staff at the heart of everything we do is supported by our People Enabler Strategy that was developed in partnership with our UK trade unions along with staff and manager consultation. This includes clear commitments regarding fair employment as well as staff wellbeing and our Equality, Diversity and Inclusion agenda. Following the pandemic we have introduced our approach to Connected Hybrid Working which increases the flexibility available to staff whilst recognising that we are a campus based organisation. That flexibility includes the ability for some staff to work partially from home but also to vary their hours, thus supporting caring responsibilities. Staff Engagement is a strategic performance indicator as set out in Strategy 2025 and we conduct regular staff engagement surveys which provides clear feedback on areas that are going well and aspects the university community may wish to improve. The University is currently working with our trade unions to review the Academic Workload Principles, responding to wider concerns regarding workload raised across the sector. We are also conducting detailed work on our staff/student

ratios ensuring that we prioritise investment in new roles to support both staff workload and student experience.

The University invests heavily in staff development supported by our Learning and Teaching Academy, Research Futures and Professional and Organisational Development teams. Our Performance and Development Review process has a strong emphasis on personal and professional development and we are introducing positive talent development reviews to ensure we focus on enabling career progression for all.

The University does not use zero hours employment contracts and works hard to ensure that casual worker arrangements are not used inappropriately. The University is committed to offering as much commitment as possible to those that work within our community and offers open ended employment arrangements wherever possible.

The University has identified a number of actions to address, over time, the gender pay gap which exists. This is fully embedded in the University's Equality Outcomes and a joint working group meets regularly to track actions and progress.

## Confident and highly capable work ready graduates

Following the move back to in-person teaching the Careers and Graduate Futures service have moved to a delivery model of mainly in-person events - including one-to-one appointments with Careers Consultants, careers and skills development workshops and employer engagement events such as our four careers fairs. To maintain an accessible approach, online events and career appointments are also offered giving students choice over how they prefer to access the range of services on offer. The service will continue to adapt to meet the balance of student demand for face-to-face and online activities.

Graduate Outcomes information and Student Career Readiness information is available through a University Planning Dashboard, giving Careers Consultants the opportunity to identify areas of employability strengths and develop additional support where gaps are identified in support of the delivery of the Strategy 2025 SPI for graduate activity (to be top decile for Graduate Outcomes). The Careers and Graduate Futures Team use this information to inform discussions and developments with academic colleagues in drawing together and agreeing Service Level Agreements with each School, mapping current, and developing new/additional careers interventions across the individual student journeys, developing student confidence in skills and opportunity awareness and future career planning.

Within the School of Social Sciences, the Careers and Graduate Futures team has worked closely with academic colleagues to plan and deliver a mandatory 'Becoming a Professional' course to all year one students. This covers areas of skills and employability understanding and development, industry research and awareness and practical support in building professional networks and communicating knowledge and skills effectively. The course was successfully delivered to over 800 Edinburgh Business School students in its first year in 2021/22 and is being further rolled out across the whole School for the January semester in 2022/23.

Across other schools, the service designs and delivers careers and employability support through integrated careers courses in programmes including Mathematics, Computer Science and Biological Sciences alongside careers input integrated into all academic programmes.

Career and Graduate Futures has a dedicated Employer Engagement team that has developed extensive and productive relationships with organisation across Scotland and the rest of the UK. The team use Salesforce to ensure that there is a co-ordinated approach to employer engagement across the whole university. To maximise the opportunities available to our students and graduates, the Employer Engagement team manage the following activities:

- Free vacancy advertising
- Organisation of Employer Recruitment presentations
- Supporting Placement students to secure relevant opportunities
- Mentoring programme for current students
- Arranging on campus recruitment facilities for employers

The service has recently acquired InPlace, a tool to help support the management of placement activity across the university. Placement Coordinators within the team liaise with both academic colleagues and industry partners to support students and develop opportunities for increasing the number of placements available, as well as designing and delivering specific training programmes and support for students seeking to develop their experience within commerce and industry.

The Service has expanded its offer to include workshops on Imposter Syndrome, adapting to an Uncertain World, How to Work Effectively in a Team and others in consultation with students. The Service has updated its' GRADfutures careers platform to offer a significant variety of career resources, including a video interview practice tool, company profiles, occupational videos, and the Career Edge+ career planning tool. It also provides links to several graduate specific job boards, which list a range of vacancies across different sectors.

The Service is also collaborating with the other Scottish universities to deliver the SFC funded Graduate Support project to engage graduates and employers. This project will deliver 350 internships and benefit 500 graduates who are from widening participation backgrounds, have a disability, are from a non-white background, or are in a subject adversely affected by COVID-19. In October 2021 we updated our GRADfutures platform to offer a significant variety of career resources, including an interview practice tool, company profiles, occupational videos, and the Career Edge+ career planning tool. It also provides links to job boards, which list a range of vacancies across different sectors.

## Knowledge Exchange and Innovation

The UIF outcomes continue to align with the Heriot-Watt University's ambitions, and we therefore confirm that we will utilise and leverage our UIF Platform Grant through our ongoing investment in business and enterprise activity. Through our annual planning process, we have committed to scaling business development and commercialisation activity as we seek to grow our global research institutes.

Further information on our Knowledge Exchange and Innovation activity can be found within our University Innovation Fund Plan 2022/23 submission. Key highlights include:

1. **Increasing our business development and partnership capability** – this aligns with our research strengths in robotics and autonomous systems (through the National Robotarium); earth and marine sciences (through the Lyell Centre); health and care engineering (building on initiatives such as the Medical Device Manufacturing Centre); net zero and energy transition (leveraging research strengths from across the University) and quantum technology. In addition, we are revising our account management approach to enhance our existing and future industry partnerships spanning talent and research activity.  
*Alignment with KE Concordat Principles: 3. Engagement, and 5. Capacity Building*
2. **Enhancing our global entrepreneurial ecosystem** - Across Scotland, UAE and Malaysia, a greater need for entrepreneurship has been recognised by governments and business organisations. This is evident through a variety of national, regional, and local policies and initiatives. Creating and scaling high growth ventures, attracting investment, and delivering economic benefit from innovation is a major priority. In particular, the Scottish and UK Governments have stated there is a greater need for entrepreneurship (including early-stage/high-growth potential) to drive a sustainable recovery. Through 2022/23, we will increase the number of entrepreneurial ambassadors, to promote and support entrepreneurship across diverse departments, and entrepreneurs-in-residence, to provide

experienced external support for entrepreneurs. Moreover, we will seek to promote global opportunities to students, staff and partners across our international networks.

*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

3. **Establishing an Academic Commercialisation Champion Network** – following on from the recent Associate Principal for Enterprise appointment, we are strengthening our champion network to encourage greater awareness and participation of business and enterprise activity.  
*Alignment with KE Concordat Principles: 2. Policies and Processes, 4. Working Transparently and Ethically, and 7. Continuous Improvement*
4. **Increasing support for Knowledge Transfer Partnerships** - Work is underway to increase the capacity within the Team to support KTPs and we will continue to share best practice with our colleagues across Scotland to grow our collective KTP portfolios. We welcome the increased investment from Innovate UK in the KTP programme, and during 2022/23 we intend to increase the quality and volume of KTPs with industry. A series of events are already in planning to support this in collaboration with the East of Scotland KTP Centre.  
*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*
5. **International Network Building and Promotion** – Through our Business and Enterprise initiatives, we will grow our network of collaborators across UK, UAE and Malaysia. We will identify and engage with investors and ecosystem partners to develop new opportunities that benefit students, researchers and partners. Work is underway to profile leading investors across our campus locations and we will engage with Scottish Enterprise to promote opportunities to the wider Scottish ecosystem.  
*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 5. Capacity Building*

## Collaboration

The University has a strong focus on collaboration across private, public and third sectors. We work with many organisations to drive economic and social impact.

### Supporting Scotland's strategy for economic transformation.

Heriot-Watt has prioritised key areas that are critical to economic recovery and future sustainable growth. Priority themes include robotics and AI, medical technologies, decarbonisation, quantum technology and earth and marine science.

Utilising the University Innovation Fund (UIF), we continue to support and collaborate with external organisations and key stakeholders where we can deliver a significant contribution to the Scottish economy.

Our support for regional economic programmes includes:

1. **Edinburgh and South-East Scotland City Region Deal**, working in partnership with the University of Edinburgh through the National Robotarium which opened in September 2022. The opening announced a new strategic partnership with TCS and highlighted several high-growth companies who are already co-located in the National Robotarium.
2. **Islands Deal**, through our Orkney Campus we are advancing business case development for the TalentED programme and Islands Centre for Net Zero. Key collaborators include EMEC, Orkney Islands Council, Robert Gordon University, Highlands & Islands Enterprise and University of Highlands and Islands.
3. **South of Scotland and Borderlands**, engaging with several key partners including Scottish Borders Council and SOSE to identify and scope opportunities for sustainable

economic transformation. Heriot Watt is working in partnership with Borders College to offer the Graduate Apprenticeship in Business Management Programme. The first two years of the course are delivered by the College at the Scottish Borders Campus in Galashiels, with the subsequent two years in Edinburgh.

We continue to work closely with Scottish Enterprise to drive wider opportunities in relation to upskilling and high-growth spin-out development. Since the Scottish Government's announcement of the Tech Scaler programme, we have engaged Codebase to explore broader collaboration potential to drive outcomes aligned to the Scottish Technology Ecosystem Review.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 4. Working Transparently and Ethically, 5. Capacity Building*

### Developing an innovation district to drive recovery and future growth.

Driving sustainable economic impact through a place-based approach is a core priority for the University. Following the publication of the Prospectus for Recovery and Future Growth, we have engaged 25+ stakeholders to assess demand and opportunity to develop on our existing Research Park. Economic impact modelling and a review of options has been undertaken and funding has now been allocated through our annual planning process to seek a commercial partner.

Workshops have been carried out with key stakeholders and a project plan agreed by University Executive which includes developing a new marketing prospectus for our research park (completed) and planned partnership days for early 2023. It is anticipated that a partner will be selected by the summer of 2023. This is highly aligned to national, regional, and local policy and fits within the broader context of Heriot-Watt's Strategy 2025. Moreover, we have supported the growth of new and existing residents such as Logan Energy, Celestia, Adaptix and other organisations aligned to our areas of R&D focus.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 5. Capacity Building*

## Climate emergency

### Strategy and climate role

In 2020/21 the University adopted a new Global Environmental Sustainability (GES) Strategy featuring a range of key commitments to enhance the institution's sustainability outcomes across operations, research, teaching and global advocacy. These included a central commitment to establish a suitably ambitious date of between 2030 and 2035 for achieving net zero greenhouse gas emissions. In January 2022 the university saw the appointment of its first Deputy Principal of Global Sustainability, enabling a stronger focus in playing a pioneering role in leading institutional and global progress in sustainability.

Development of the University's Net Zero Plan progressed during 2022 and is continuing in 2023, taking into account the rapidly changing energy and supply chain market. Further consideration of appropriate decarbonising technologies for provision of campus heating, approaches to travel policy and principles and community engagement to promote carbon literacy have all been progressed over the past year. Despite significant growth in our physical estate, our energy use emissions (Scope 1 and 2, including liquid fuels) in Scotland have reduced by more than 40% in 2021/22 relative to 2014/15 (our first year of reporting under Public Bodies Climate Change Duties). A focus on short term building energy optimisation opportunities is ongoing in advance of further fabric and technology-focussed approaches.

A collaborative project with regional and national partners has progressed the development of new active travel routes between the Edinburgh campus and surrounding communities, with an accompanying community consultation process about to launch.

During 2023 we continue working on the development of two initiatives: (i) a carbon literacy training programme to be made available to all staff and students will launch in late 2023; and (ii) Net Zero Community Hub<sup>2</sup>, a new physical-digital centre for showcasing activities and innovations to

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<sup>2</sup> Net Zero Community Hub: <https://www.hw.ac.uk/uk/about/sustainability/netzerohub.htm>

address sustainability challenges. Digital twins for the Net Zero Community hub will be used to enhance understanding of the impact of the physical features of the building and the potential impacts of future climate change as well encouraging shared learnings with our wider Global Community.

The University’s broader climate role includes significant impact from our research activities and their contribution towards the UN Sustainable Development Goals. Research is progressing at the UK Industrial Decarbonisation and Research Innovation Centre (IDRIC), based at Heriot-Watt University, backed by £20M of investment. They recently launched their Flexible Funding and Secondment Fund (£6M), providing the opportunity to respond to emerging and/or urgent research needs from industry partners and latterly pathways to increase engagement and knowledge exchange between industry stakeholders, researchers and policy-makers.

The university’s significant subject expertise in areas of strong relevance to the energy transition and sustainable building technologies are at the forefront of the creation of a new Global Research Institute in Net Zero, promoting cross-discipline research into determining solutions for our transition away from a reliance on fossil fuels for heat and energy provision. The consequences of such for the higher education sector was the subject of the 2022 Queen’s Platinum Jubilee Challenge, which Heriot-Watt University contributed towards. The challenge culminated in the publishing of a report to government and roadmap for emissions reductions for the sector.

Linked to our GRI in Net Zero Carbon, we have the ambition to further drive change through creating a skills academy for “green jobs” and an enterprise accelerator programme to support start-up companies with radical approaches to carbon innovation.

### Community Engagement

Inspiring change through community engagement and showcasing of sustainability initiatives and innovations, the Net Zero Community Hub will demonstrate our organisational response to climate change. Physically located on our Edinburgh campus, but with an online digital twin accessible across our global community, the building will adhere to net zero building standards, embracing the circular economy in the choice of construction materials. It will include the use of the K-Briq, made from over 90% recycled demolition waste materials, the production of which produces just one tenth of the CO<sub>2</sub> emissions of a traditional fired brick.

### Emission reduction progress

The table below presents the University’s greenhouse gas emission baseline data and emission reduction performance, as reported within annual Public Bodies Climate Change Duties (PBCCD) submissions. The data relates to the Scotland campuses, following the existing reporting boundary defined within the Carbon Management Plan (CMP) 2015/16-2019/20, and includes emissions associated with the operation of University buildings, business travel, management of wastes and water consumption.

Annual emission performance – Scottish campuses (2020/21 figures pending):

	2014/15	2015/16	2016/17	2017/18	(Baseline)		2020/21*	2021/22*
					2018/19	2019/20		
Target emissions (tCO <sub>2</sub> <sup>e</sup> )	21,583	20,936	20,288	19,641	18,993	18,346	-	-
Actual emissions (tCO <sub>2</sub> <sup>e</sup> )	21,583	20,414	20,059	18,789	17,474	14,092	11,362	12,305
CMP target reduction (%)	-	3	6	9	12	15	-	-
Actual reduction (%)	-	5.4	7.1	12.9	19	34.7	-	-

*\*adoption of interim targets embedded in Net Zero Plan, publication Summer 2023.*

### Support for the UN Sustainable Development Goals

Research carried out at the University is now mapped against the UN Sustainable Development Goals (SDGs), enabling researchers, collaborators, and potential funders to identify where our researchers are contributing to achieving these goals. Academic profiles and research output are assigned to each of the 17 SDGs



**Heriot-Watt University  
University Innovation Fund Plan  
2022/23**

**FINAL Version (07 Nov 22)**

## Heriot-Watt University – University Innovation Fund Plan 2022/23:

Heriot-Watt has prioritised key areas that are critical to economic recovery and future sustainable growth. Priority themes include robotics and AI, medical technologies, decarbonisation and earth and marine technology. Through our revised annual planning process, several of our recently funded initiatives strongly align with UIF outcomes.

The UIF outcomes will continue to align with the Heriot-Watt University's ambitions, and we therefore confirm that we will utilise and leverage our UIF Platform Grant through our ongoing investment in business and enterprise activity. Through our annual planning process, we have committed to scaling business development and commercialisation activity as we seek to grow our global research institutes.

This document provides an outline of our plans aligned to the following 7 outcomes:

1. **Demand Stimulation**
2. **Simplification/Commercialisation**
3. **Simplification/Greater Innovation**
4. **Entrepreneurialism**
5. **International**
6. **Inclusive Growth and Social Impact**
7. **Equality and Diversity**

### OUTCOME 1. Demand Stimulation

Increase the demand and quality of engagement from businesses and the public sector for university services.

#### **[Increased Business Development & Partnership Capability] [HW]**

In 22/23, we have increased the University's Business Development Team across our talent and R&D focused areas. Our activity going forward will focus on strengthening industry partnerships aligned with our research strengths in robotics and autonomous systems (through the National Robotarium); earth and marine sciences (through the Lyell Centre); health and care engineering (building on initiatives such as the Medical Device Manufacturing Centre); net zero and energy transition (leveraging research strengths from across the University). In addition, we will revise our account management approach to enhance our existing and future industry partnerships.

*Alignment with KE Concordat Principles: 3. Engagement, and 5. Capacity Building*

#### **[Strengthened Partnership Working] [HW]**

In 22/23, we will strengthen our relationships with Innovation Centres, Economic Development Agencies and Chambers of Commerce to drive demand stimulation with business and industry. A series of activities are planned with Scottish Engineering, CENSIS, Silicon Catalyst and Edinburgh Chamber of Commerce to raise awareness amongst industry and public sector.

*Alignment with KE Concordat Principles: 3. Engagement, and 5. Capacity Building*

#### **[Innovation Centres/Interface] [Joint]**

In an institutional capacity and through active participation in RCDG, we will actively engage in influencing SFC's redefined 'infrastructure investments' in Innovation Centres and Interface. We support the aim that these infrastructure investments are strategically closer to HEIs, which has the potential to increase the demand and quality of engagement from businesses and the public sector for university services.

*Alignment with KE Concordat Principles: 3. Engagement, and 5. Capacity Building*

## **OUTCOME 2. Simplification/Commercialisation**

Simplify business access to the knowledge and expertise in Scottish universities.

### **[Revised Strategic Marketing Plan] [HW]**

During 2022/23, we will review and revise our internal and external marketing channels to ensure that knowledge and expertise within Heriot-Watt is appropriately communicated to target stakeholders. This will include redefining the 'customer journey' for academics and businesses with the intention of simplifying the commercialisation process. During the last year, we have advanced our capability to track and review our commercialisation portfolio through our CRM and data insights, this provides a strong basis to build from.

*Alignment with KE Concordat Principles: 2. Policies and Processes, 4. Working Transparently and Ethically, and 7. Continuous Improvement*

### **[RCDG Contracts sub-group] [Joint]**

RCDG facilitates a Contracts subgroup, and we will continue to support and engage with this group as required. This Group shares best practice around policy and procedure, simplifying processes for business engagement.

*Alignment with KE Concordat Principles: 2. Policies and Processes, 4. Working Transparently and Ethically, and 7. Continuous Improvement*

### **[Innovate UK] [Joint]**

[Through the UIF Collaboration Manager,] we continue to engage with the regional lead for Innovate UK in Scotland, to influence policy and increase opportunity for Scottish businesses to innovate.

*Alignment with KE Concordat Principles: 3. Engagement*

### **[IP Commercialisation Peer Network] [Joint]**

In 2022/23, we welcome the formation of an IP Commercialisation Peer Network, to identify common goals around IP Commercialisation, and define institutional and national drivers, and share best practice. This peer network will influence positive change in our institutional policies and procedures, simplifying business access to knowledge and expertise in our institution.

*Alignment with KE Concordat Principles: 2. Policies and Processes, 5. Capacity Building, and 7. Continuous Improvement*

### **Case Study: ASML**

Heriot-Watt announced a new partnership in 2021 with ASML, the world's leading manufacturer of semiconductor lithography machines. The partnership has resulted in a new laboratory at Heriot-Watt University which will accelerate the industrialisation of fundamental physics research. The partnership is focused on new broad bandwidth light sources for optical metrology and supports ASML's research agenda and technology roadmap.

## **OUTCOME 3. Simplification/Greater Innovation**

Make strategic use of their sectoral knowledge to promote greater innovation in the economy.

### **[Establish Academic Commercialisation Champion Network across Heriot-Watt] [HW]**

Following on from our recent Associate Principal for Enterprise appointment, we will strengthen the academic champion network to promote greater awareness of innovation and commercialisation from our research base. The new Associate Principal for Enterprise will work closely with the Chief Entrepreneurial Executive and a variety of stakeholders across the University to enhance innovation and commercialisation culture.

*Alignment with KE Concordat Principles: 2. Policies and Processes, 4. Working Transparently and Ethically, and 7. Continuous Improvement*

### **[UIF Challenge Fund Network] [Joint]**

In 2022-23, we will continue to engage with other Scottish HEIs on mission-led funding through the UIF Challenge Fund Network. This is a network of Research/Business Development Managers with a particular interest in Collaborative R&D Funding, from UKRI and other funders. The Network meets on a regular basis to enable peer-to-peer support, initiate new collaborations, engage with funders, and facilitate horizon scanning for the next big opportunities.

*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

### **[KTPs] [Joint]**

Work is underway to increase the capacity within the Team to support KTPs and we will continue to share best practice with our colleagues across Scotland to grow our collective KTP portfolios. We welcome the increased investment from Innovate UK in the KTP programme, and during 2022/23 we intend to increase the quality and volume of KTPs with industry. A series of events are already in planning to support this.

*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

## **OUTCOME 4. Entrepreneurialism**

Make a significant and positive change in the way entrepreneurial opportunities are promoted and delivered to students, HEI staff, and businesses.

#### **[Enhancing our global entrepreneurial ecosystem] [HW]**

Across Scotland, UAE and Malaysia, a greater need for entrepreneurship has been recognised by governments and business organisations. This is evident through a variety of national, regional, and local policies and initiatives. Creating and scaling high growth ventures, attracting investment, and delivering economic benefit from innovation is a major priority. In particular, the Scottish and UK Governments have stated there is a greater need for entrepreneurship (including early-stage/high-growth potential) to drive a sustainable recovery.

Through 2022/23, we will increase the number of entrepreneurial ambassadors, to promote and support entrepreneurship across diverse departments, and entrepreneurs-in-residence, to provide experienced external support for entrepreneurs. Moreover, we will seek to promote global opportunities to students, staff and partners across our international networks. We plan to launch a 'global incubator' that enables shared learning (initially across UK and UAE followed by Malaysia).

*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

#### **[Developing enhanced accelerator programmes] [HW]**

Through 2022/23, we will engage with the Scottish Government to support efforts around Tech Scalars and seek to develop specific programmes that target commercialisation aligned with our research strengths. To support our plans, we will work closely with the investment community (across Angel, VC and CVC) and industry partners. Our community of PhDs and RAs provide a strong talent base for growth companies.

*Alignment with KE Concordat Principles: 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

#### **[Entrepreneurial Campus Strategy] [Joint]**

In 2022-23, we will continue to engage with SFC and Scottish Government to help define an Entrepreneurial Campus Strategy. This engagement is driven through our participation in ESG and RCDG, and with the support of the UIF Collaboration Manager.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 5. Capacity Building, and 7. Continuous Improvement*

### **OUTCOME 5. International**

Pool knowledge and networks and share good practice to promote and engage Scotland internationally.

#### **[Inward Investment Plan/Innovation Strategy] [HW]**

Throughout 2022-23, we aim to support the implementation of the Inward Investment Plan (Scottish Government, 2020), in line with the anticipated Innovation Strategy. We have a track record of attracting inward investment to Scotland through our Riccarton Research Park. Our aim is to advance strategic partnerships aligned to our research strengths that results in inward investment in

areas that include: sustainable manufacturing, robotics, health and care. Several proposals are in development and greater support will be given for business case development.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 5. Capacity Building*

### **[International Network Building and Promotion] [HW]**

Through our Business and Enterprise initiatives, we will grow our network of collaborators across UK, UAE and Malaysia. We will identify and engage with investors and ecosystem partners to develop new opportunities that benefit students, researchers and partners. Work is underway to profile leading investors across our campus locations and we will engage with Scottish Enterprise to promote opportunities to the wider Scottish ecosystem.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 5. Capacity Building*

#### **Case Study: Dubai Expo 2021**

In December 2021, Heriot-Watt hosted a major event at the UK pavilion in Dubai and explored how the University's world-leading research is shaping education, catalysing industries and framing jobs of tomorrow in response to the changing workplace - through sustainability, mobility and innovation. The event brought together international thought leaders from across industry, finance and academia. It has since led to multiple opportunities being developed in line with our strategic priorities.

## **OUTCOME 6. Inclusive Growth and Social Impact**

Scale up support of the Scottish Government's ambitions for inclusive growth.

### **[City Region Deals] [HW]**

As a strategic partner in both the Edinburgh and South-East Scotland City Region deal and the Islands Deal, we will aim to engage with other HEIs through the UIF Inclusive Growth Group. Moreover, we intend to strengthen our relationship through the Borderlands Growth Partnership supporting the South of Scotland's strategic plan.

In 2022-23, the UIF Inclusive Growth Group aims to convene around common themes of funding, repurposing assets, benefits realization, and community engagement. Learnings from this peer group will enhance our engagement with our own City Region Deal, influencing more productive interactions and improve outcomes for our local communities and economy.

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 4. Working Transparently and Ethically, 5. Capacity Building*

### **[Edinburgh Just Economic Transition] [HW]**

Through our partnership with the Edinburgh Chamber of Commerce, we will continue to support Scotland's just economic transition through the 'JET' Group. We will formally review the University's research strengths and promote opportunities that are strategically aligned. The 'JET' Group consists of businesses and civic organisations working across the following four themes:

- Ensuring the Transition is 'Just'
- SME Support, Skills & Supply Chains

- Partnerships, Enablers and Investment
- Measurement, Impact, and Communications

*Alignment with KE Concordat Principles: 1. Mission, 3. Engagement, 4. Working Transparently and Ethically, 5. Capacity Building*

#### **Case Study: National Robotarium**

The National Robotarium, the UK's newest centre for robotics and artificial intelligence officially opened its doors, as announced at a special event held in the £22.4m facility on 28 September 2022. Funding is provided through the Edinburgh and South-East Scotland City Region Deal which is centered around driving inclusive growth.

Located on Heriot-Watt University's Edinburgh campus, in partnership with the University of Edinburgh, it will be the largest and most advanced applied research facility for robotics and artificial intelligence (AI) in the UK, creating an innovation hub for the practical application of robotics and autonomous systems.

#### **OUTCOME 7. Equality and Diversity**

Ensure positive promotion of equality and diversity in staff and all who are affected by the use of the UIF.

Through each of the UIF collaborative activities, we benefit from the diversity of our HEIs, including the diversity of individuals involved. In AY2022-23, we will collaborate with our colleagues in SFC and RCDG, with support of the UIF Collaboration Manager, to identify core workstreams of collaborative activity that contribute to the top priorities of green recovery, wellbeing economy, and a just transition to net zero carbon society.

*Alignment with KE Concordat Principles: 1. Mission, 4. Working Transparently and Ethically, and 7. Continuous Improvement*

## University Outcome Agreement Impact Framework: Supporting Data

v1.3 09May'23

Measure	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
A Number of Scottish-domiciled Undergraduate Entrants	1,175	1,211	1,363	1,422	1,420	1,541	1,292	1,462	1,290
B Total number of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes		293	332	342	308	309	288	222	285
Number of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes with Advanced Standing		144	171	154	177	167	167	88	102
Proportion of Scottish-domiciled HN entrants from Scottish colleges to undergraduate programmes with Advanced Standing		49.1%	51.5%	45.0%	57.5%	54.0%	58.0%	39.6%	35.8%
C COWA measure: Total number of Scottish-domiciled full-time first degree entrants	1,153	1,209	1,349	1,371	1,416	1,497	1,456	1,460	1,289
COWA measure: Number of Scottish-domiciled full-time first degree entrants from the 20% most deprived areas	125	119	114	153	154	164	167	168	133
COWA measure: Proportion of Scottish-domiciled full-time first degree entrants from the 20% most deprived areas	10.8%	9.8%	8.5%	11.2%	10.9%	11.0%	13.4%	11.5%	10.3%
D Number of Scottish-domiciled undergraduate entrants with care experience	1	1	5	10	13	16	16	20	48
Proportion of Scottish-domiciled undergraduate entrants with care experience	0.1%	0.1%	0.4%	0.7%	0.9%	1.0%	1.2%	1.4%	3.7%
E Number of Scottish-domiciled full-time first year entrants	1,371	1,142	1,200	1,333	1,407	1,407	1,522	1,243	1,439
Number of Scottish-domiciled full-time first year entrants returning to study in year 2	1,254	1,039	1,078	1,229	1,266	1,267	1,407	1,090	1,295
Proportion of Scottish-domiciled full-time first year entrants returning to study in year 2	91.5%	91.0%	89.8%	92.2%	90.0%	90.0%	92.4%	87.7%	90.0%
F The difference (+/-) from the individual institution benchmark figure for students satisfied with the overall quality of their course of study in the National Student Survey	4	4	-2	-3	2.1	1.6	3.96	-7.07	
G1 The number of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey				523	527				
The proportion of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey in a positive destination				505	482				
The number of Scottish-domiciled undergraduate qualifiers responding to the Graduate Outcomes survey in a positive destination				96.6%	91.5%				
G2 The number of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment				421	382				
The number of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment in professional employment				321	273				
The proportion of Scottish-domiciled full-time first degree qualifiers responding to the Graduate Outcomes survey in employment in professional employment				76.2%	71.5%				
H Number of Scottish-domiciled Undergraduate Qualifiers	885	989	1,139	1,059	1,061	1,133	1,256	1,290	~1,140

Please note that 2018-19 and 2019-20 figures for measure G2, 2019-20 figures for measures F and H and all 2020-21 figures are impacted by the COVID-19 pandemic and may not be directly comparable to other years

## Outcome Agreement between Heriot-Watt University and the Scottish Funding Council for AY 2022-23

### On behalf of Heriot-Watt University:

Signed:



Print name: Professor Richard A Williams

Position: Principal and Vice-Chancellor

Date: 11/05/2023

Signed:



Print name: Bruce Pritchard

Position: Chair of Court

Date: 11/05/2023

### On behalf of the Scottish Funding Council:

Signed:



Print name: Karen Watt

Position: Chief Executive

Date: 26 July 2023