

# Heriot-Watt University SFC Outcome Agreement 2023/24

17 November 2023

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# Statement by the Principal and Vice-Chancellor

I am pleased to confirm Heriot-Watt University's commitment to this Outcome Agreement, covering academic year 2023/24, between the University and the Scottish Funding Council (SFC) on behalf of the Scottish Government. Despite the extended impact of the economic environment and residual impacts of COVID-19 pandemic, 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.

Like most educational institutions we have been impacted by the pandemic and the financial challenges we all face, but I believe that Heriot-Watt continues to be well placed to deliver our Strategy 2025, Shaping Tomorrow Together, launched in January 2019 and running 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. We commit to
  maximise our contribution 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.

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). We are well placed to drive economic growth and address social challenges through educating the future workforce (85.4% of our graduates go on to full time employment or further study, putting Heriot-Watt top in Scotland and 4th in the UK), advancing research, building global collaborative partnerships and commercialising technology. Our international footprint, and increasing international partnerships provide the university with diverse income streams, ensuring our financial sustainability as we seek to grow our income and surplus in these challenging times. These resources are also being used to support Scottish students. Our international positioning promotes a diverse cultural approach to our teaching, research and impact across the University. We operate a global widening access policy and in 2022/3, 30% of our students entered the University because of a direct access intervention made.

This Outcome Agreement is focused on the University's activities in Scotland in 2023/24. It demonstrates 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. We continue to navigate well 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, FREng, FTSE, FRSE Kecher Williams
Principal and Vice-Chancellor

# **Consultation**

There has been broad consultation on this 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.

# **Priority area 1: Fair access and transitions**

Heriot-Watt University (HWU) continues to be responsive to inclusion and wider access across all our global campuses. Focussing on Scotland however, we are continuing to see a decline in widening participation students from disadvantaged and low-income areas. Bodies such as Skills Development Scotland (SDS) would suggest that this is, in part, in response to the cost-of-living crisis and related anxieties around finances. This is particularly seen in the continuing reduction of students attending local partner colleges and progressing from college into university, which in turn contributes in large part to the reduction in articulating students. School and college leavers choose a buoyant employment market rather than further or higher education, exhibiting a high level of anxiety around finances. We also continue to see the ongoing impact of remote learning during covid which has affected students' confidence and ability to concentrate and commit. Evidence continues to suggest that this decline will continue over the coming years, with local college partners particularly worried about both recruitment and attainment year on year.

We continue to develop and enhance our tailored support for vulnerable groups in response to the growing number of care-experienced and estranged students, and those with unpaid caring responsibilities, now identifiable through changes to the UCAS application form. The University also continues to grow the amount and availability of access bursaries targeting widening participation students. This year we have begun to work more closely with charities and support networks in these areas pre-entry to provide additional information, advice and guidance to students considering higher education. We are particularly pleased with the partnership we have with Edinburgh Young Carers, and the developing school's engagement links through the Work Columba 1400 are doing with care experienced young people and will continue to develop these ties with similar support networks in the coming years. This will ensure these groups of students receive an enhanced level of support necessary to navigate pathways to higher education.

In the past year we have piloted a Widening Participation (WP) Ambassadors programme, giving students from WP backgrounds the opportunity to work flexibly around their studies. We were very pleased with the success of this first year and will develop and grow this to include more ambassadors and develop the work the more experienced ambassadors undertake. This will provide much-needed social capital and work experience to positively impact the student's employability, while also creating role-model visibility through engagement work with future WP students through activities such as open days.

Our work with schools continues to grow, with our membership of the Lothians Equal Access Programme for Schools (LEAPS) partnership at the heart of what we do. We also continue to support Aspire North and Lift Off as and when we can, including campus visits and admissions and course choice advice for individual pupils. We continue to grow our STEM engagement at an early age to include local secondary schools and their feeder primaries, improving both STEM engagement and transitional support. We continue to work with our local communities through the introduction of a schools project aimed at aspiration raising at junior high school age in local high schools. We are developing links with other 'priority' high schools in the region to enable us to target our outreach work at those communities who would most benefit. In addition, we are growing and developing our work with both Woodlands School, an additional support needs school, and Harmeny Education Trust who work with care experienced young people providing residential care and education. This engagement allows us to raise aspirations and engage students more fully with the educational opportunities and pathways available to them in a supported environment.

We continue to support all partnership programmes in their efforts to provide additional support including LEAPS, Scottish Wider Access Programme, Service Children's Progression Alliance Scotland and the Hub for Success. Working with partners in the East of Scotland Regional Forum (ESRF) and the continued development of the Pathways App, we also continue to provide tailored information, advice and guidance (IAG) to college students.

The University continues to actively engage with the SQA's Higher National (HN) Next Generation project to redesign the HN qualification suite. The ESRF partnership continues to prove invaluable in this work. Work is underway within the University to prepare for any required Admissions policy amendments and a review of any pathways to HE once further information on the qualifications become available.

We continue to see an increased level of anxiety and lack of preparedness from students who had been affected by the pandemic and the amendments to exams and course content. The continued amended content in certification subjects, particularly in STEM, means students have gaps in 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 HWU 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 investigate ways to identify and support these groups.

# **Priority area 2: Quality learning and teaching**

2023/24 marks the fifth year of implementing the Learning and Teaching Strategy (LTS) 2025, with its focus on the HWU Graduate and three key priority areas for enhancement (Curriculum, Teaching, Assessment). The Learning and Teaching Strategy, which supports the Pioneering in Education theme of the institutional Strategy 2025, is underpinned by an Operational Plan.

The *Global Changemaker* vision continues to shape the University's strategic direction in learning and teaching across our three areas for strategic development.

- The Global Changemaker Curriculum Framework and an associated curriculum and assessment design toolkit launched in spring 2023. Schools are now engaged in developing or refreshing their taught provision, linking the refreshed HWU Graduate Attributes to purpose-driven, globally connected learning through the course and programme design process.
- <u>Innovation in assessment</u> is being supported through a focus on Assessment for Learning, ensuring that assessment is meaningful and connected to real-world impact. As the University transitions, as part of its Review of the Academic Architecture, to shorter assessment diets from 2023/24, this is providing an impetus for further systematic review of assessment across our Schools and a diversification of assessment beyond in-person exams.
- <u>Teaching transformation</u> is being driven through a focus on strengthening educational leadership and effective global teaching teams. This continues to be strengthened through tailored support for course and programme leaders and a refreshed suite of resources for course design and delivery in a post-pandemic environment. Simultaneously, the career pathways, remuneration and remits for teaching-related roles are being clarified and standardised across the institution.

#### Quality Learning and Teaching: In Partnership With Students

The University continues to be particularly effective in, and recognised externally for, championing student engagement and partnership, with sector-leading developments such as: position of School Officers; Student Oscars; representation across multi-campus locations, with the latter being highlighted very positively in the HWU-QAAS Institutional Liaison Meeting, November 2022. Engagement and partnership are exemplified by the global Student Partnership Agreement (SPA) between the University and the three Student Representative Bodies in the Scottish, Dubai and Malaysia Campuses. Recent SPA highlights include

- Globally aligned Learning and Teaching Oscars across all campuses
- Global alignment of Sustainability Week
- Collaborative development of resources on Academic Integrity; Feedback on Assessment;
   Mitigating Circumstances
- Increased participation in, and availability of physical space for, sports

The University showcased its SPA at the QAAS Enhancement Themes Conference in June 2023, which has led to a sector-wide project to chart the history and impact of the SPA in Scotland. The shift to a calendar year for the SPA development from 2024 will provide greater continuity between initiatives as office role holders change, and an underpinning Communications and Engagement Plan aims to increase awareness and buy-in. The implementation from 2023/24 of a Global Partnership Ethos is intended to strength and deepen further the partnership working.

Students are actively engaged as partners in all strategic developments related to their learning experience. Recent and forthcoming activities include: facilitating the return to campus through access to recordings; developing the institutional policy and procedures for mitigating the academic impact of industrial action; shaping the Global Changemaker Curriculum Framework; revising the

HWU Graduate Attributes; developing an extensive suite of resources and support on Academic Integrity; defining HWU as a responsive, student-centred institution.

### Assuring Quality and Driving Evidence-based Enhancement

The University has a well-established, robust framework for assurance and enhancement (as commended in ELIR4, March 2021, and Dubai Commission for Academic Accreditation, January 2023), which provides an extensive suite of data and evidence for evaluation and subsequent action planning and prioritisation. Full details of the framework are set out in the *Institutional Quality Report to SFC*, September 2023. Key mechanisms include: a suite of annual quality summary reports; regular review of the Learning and Teaching Strategic Operational Plan; quarterly tracking of SPIs for the Pioneering in Education theme; enhanced data dashboard functionality; 5-year data sets for Boards of Examiners to ensure consistent academic decision-making and maintaining the value of the University's qualifications over time. At its meeting in September 2023, the Audit and Risk Committee confirmed the effectiveness of the University's processes for assuring and enhancing the quality of its provision.

The University's poor performance in National Student Survey (NSS) 2022 (70% overall satisfaction) and NSS 2023 (68.7% overall satisfaction) have shown that while some key issues were addressed in 2022/23 around teaching, academic support and learning resources (positive scores), there are areas requiring targeted action: organisation and management; assessment and feedback; student voice; communication; community.

- These are being prioritised through a review of the breadth of institutional and local evidence, and the refresh of strategic and local plans to amplify and accelerate priority changes.
- This critical work is supported by independently facilitated workshops in each global location, to step forward action on core themes with agreed timelines and institutional/local leads.
- Increased support is being put in place for Heads of Discipline and Programme Directors to support them to address NSS-related actions at local levels.
- The University has commissioned an external, independent review of the effectiveness of the University's processes for Student Voice.

According to Postgraduate Teaching Experience Survey 2023, PGT students across all modes and locations are satisfied with most of their learning and teaching experiences, returning rates of 83% or higher; "support" emerged as a lower scoring area, and will be a key theme within the aforementioned review. For PGRs, Postgraduate Research Experience Survey 2023 shows a 75% overall satisfaction rate, with strengths in supervision, research skills development and resourcing; community and research culture continue to be areas for enhancement.

- The Graduate School, which will launch in January 2024, will provide a locus for a more structured approach and framework for PGRs.
- A Quality Enhancement Officer has been appointed from October 2023 to provide a dedicated, central resource for enhancing both the PGT and the PGR student experience.
- Key priorities for action include review of the PGT student experience and collaborating with Student Representatives to enhance the PG student voice.

### **Encouraging Evidence-Based Action and Amplifying Success**

A range of evidence-based enhancements to the student experience will be progressed during 2023/24, all of which will be managed through a new Student Experience and Satisfaction Group, which will report to the University Committee for Learning and Teaching, and will provide a dedicated, more focused forum for action planning, reporting and tracking of initiatives taken in response to student voice.

One such key enhancement, being piloted in 2023/24, is a revised Student Advisory System: following an extensive review of the existing Personal Tutor system, in response to student and

staff feedback and benchmarking HWU's approach against the sector. The key features of the new Student Advisory Model, which will be key to retention and student success (currently at 89.5%), will be: a holistic student support system; existing Personal Tutor role to transition to an Academic Advisor role (focused on a subset of academic advice and support); a new form of Student Advisor to focus on academic administrative matters, pastoral and wellbeing support, triaging to other services as appropriate.

The most recent data on percentages of "good degree classification" shows a decline to 78%, representing an ongoing return to pre-pandemic levels and highlighting the University's focus on maintaining quality and academic standards and securing the value of HWU qualifications over time.

The University's institution-wide actions to address academic misconduct have seen a very positive impact within a year. Through the establishment of an Academic Integrity Group (AIG), there has been significant decline in academic misconduct cases (from 2245 in 2021/22 to 712 in 2022/23, as at 31 May 2023), due to a range of factors, including: the replacement of take-home exams with in-person exams and other changes in assessment; the extensive range of resources and support produced by the AIG; increased awareness amongst staff and students; improved student engagement. The introduction of a Longitudinal Induction Framework for Academic Skills Development and Academic Integrity will be piloted in 2023/24, and will be integrated into the enhanced induction and support which is being introduced from 2023/24.

Graduate employability remains an area of strength. The Careers and Graduate Futures Service continues to deliver a professional, high quality careers guidance and information service and collaborates with Schools on embedding employability into the curriculum through initiatives such as the Becoming a Professional course and the Aspiring Futures programme. According to the Graduate Outcomes Survey 2020/21, HWU is top in Scotland and 4th in the UK for UG and PGT graduate employability, with 85.4% of graduates in full-time employment or further study. The University's key Strategic Performance Indicator within Strategy 2025 is to be in the top decile for Graduate Outcomes. The refreshed Graduate Attributes and Global Changemaker are providing a focus on authentic, applied learning and assessment to drive further embedding of employability skills and capabilities into core and co-curricular student experience.

# **Priority area 3: Coherent learning provision**

HWU's heritage of the practical application of knowledge and working in partnership with industry positions us at the forefront of creating a skilled population that drives business productivity and economic prosperity. For over 200 years we have focussed on rigorous and innovative approaches to producing career and future ready graduates. Our sector leading position can be evidenced presently by:

- the latest data for the HESA Graduate Outcomes survey (2020/21) showing HWU being ranked 2<sup>nd</sup> and 5<sup>th</sup> in the UK for Postgraduate and Undergraduate positive graduate destinations respectively.
- the recent Novuna Business Cash Flow survey of 121 UK Universities, Heriot Watt University was first in UK for producing CEO's/MD's. <a href="https://www.businessleader.co.uk/top-universities-shaping-uk-business-leaders/">https://www.businessleader.co.uk/top-universities-shaping-uk-business-leaders/</a>

We approach this work at an institutional level by setting strategies to encourage the optimum design, delivery, and improvement of our educational portfolio. Using our global institutional footprint we are able to assess demand for learning and skills provision in the communities we operate that balances the needs of students, employers in local economies and wider society. Our Programme Management Board (PMB) evaluates the future potential of new Programmes of study. New Programmes are brought forward by School management for joint evaluation with PMB. External data on applicant and employer demand is reviewed alongside internal resource and infrastructure requirements, before launch decisions are made. Independently PMB also tracks external trends in terms of development and growth of new markets and sectors. Existing Programmes are subjected to regular performance monitoring and evaluation, where finance data is reviewed alongside judgements on wider benefits, in deciding future management of Programmes.

Aligned with the NSET Entrepreneurial People and Culture theme, at senior level, including Post Graduate Taught and Research, we have introduced a culture of encouraging business 'start-up' for those senior students who wish to explore business development ideas. Space and business development support is provided through our GRID facility. The Enterprise Team at GRID also delivers the flag-ship Global Innovation Challenge (GIC), a 10-week programme developing critical enterprise skills and encouraging entrepreneurial ambitions which in 2022/23 attracted participation from 200 undergraduates and postgraduates. GIC is delivered in a hybrid fashion, allowing participation from our 3 campuses in the UK and from students at our international campuses in Dubai and Malaysia. Many of the 2022/23 cohort went on to participate in national and international competitions in entrepreneurship and innovation. The Scotland-wide Converge Challenge, which HWU delivers to students and staff at all universities, saw record numbers of HWU students apply and an all-time high of 6 entries from the University shortlisted for the awards later this year.

Our pioneering work on graduate apprentices, online learning and upskilling firmly support lifelong learning making sure employers have the supply of skills they need.

In terms of the career development of our students we make an early start. All students are asked to identify how far along the career planning path they are during the enrolment process. This 'Career Readiness' data is used by the Careers & Graduate Futures team to ensure that career guidance interventions are specific to the student's needs. For example, this allows us to identify our final year students who need additional advice and guidance to ensure that they have the best chance of securing a positive outcome after graduating.

Our Employer Engagement team are in constant dialogue with both local and national employers to ascertain what skills and qualities, technical and personal, they are looking for from applicants for their graduate roles. We regularly attend meetings with employer organisations, such as the East and Midlothian 'Developing the Young Workforce' group and the Institute of Student Employers, to discuss the needs of both local and national employers.

Every year, the team send out a feedback survey to all employers, such as Nat West; SSE; AAB and the Cumming Construction Group, who have directly engaged with us over the previous year

to ascertain how our students are performing in terms of meeting their recruitment requirements. This feedback is extremely useful as it helps to inform future career support interventions with our students.

The relationships we have with organisations across all sectors of commerce and industry, results in the university regularly having over 80 employers at our annual Careers Fair seeking to recruit our students. In 2023, organisations attending the Fair included multi-national companies such as Bloomberg and Deloitte, as well as locally based SMEs such as Azets and Baillie Gifford.

Developing the skills that students need to be successful in the graduate labour market, and throughout their whole career, is often achieved at HWU through a collaboration between academic departments and the Careers & Graduate Futures Service. For example, as an integrated element of their degree programme, every 1st Year student within the Edinburgh Business School takes the 'Becoming a Professional' course, which assesses and develops students' abilities to have a clear career purpose in mind; construct a detailed plan on who they are going to achieve their aim and to understand how to effectively articulate their personal and professional value to employers.

# Priority area 4: Work-based learning and skills

HWU is committed to Graduate Apprenticeships and supporting progression through the apprenticeship family. This will involve working with the Scottish Funding Council and other stakeholders to ensure sufficient flexibility in the system to meet individual and employer needs, for example to distinguish between the differing needs of traditional and non-traditional learners in terms of time and balancing other parts of life. We use the Skills Development Scotland Regional and Sector Skills Assessments to determine skills needs and have audited meta-skills in our programmes so that employers can see where these skills are learned, demonstrated and assessed. We will be doing the same for digital and green skills, within the context of the individual programmes. The University makes full use of the Upskilling Scotland funding every year and is frequently over-subscribed. In total, this funding has supported more than 1500 learners from more than 600 employers, with courses ranging from business and leadership to renewable energy. Through this funding we are enhancing existing partnerships with employers and developing new ones. Many programmes across the University offer a work placement of at least one semester, and many for a whole academic year.

The University is engaged with Chamber of Commerce and local DYW groups, but also with some trade bodies, for example Scottish Engineering. The University welcomes the opportunity to work more closely with these groups, particularly around member skills shortages with local chambers, for example. We have built flexibility into our GA programmes so that we can, within reason, respond quickly to employer needs through work-based learning.

We are actively investigating opportunities to work with providers of other parts of the apprenticeship family so that we can provide the right pathway for individuals whom employers decide are the right people for their organisation, particularly where businesses have a developed social responsibility policy for supporting "hard to reach" groups. This should include the right starting point in FE/HE for each learner and possible progression routes through the system, so that there is a clear path for those who want to follow it if options for change or identification of change points. In addition, several of our larger employer partners are recruiting school leavers without traditional university entrance qualifications and we want to work with them to develop appropriate routes for the learners, including potentially a recognised pre-apprenticeship.

We are actively looking at alternative strategies to meet a wider geographical need including increasing the use of our Orkney and Borders campus beyond an alternative venue for the few exams we have in our GA programmes.

We are also making strategic decisions about the viability of some of our existing GA programmes, developing new programmes that align with existing frameworks (e.g. Accounting), but also to identify new subject areas that align with our portfolio and meet a viable employer need (e.g. Chemical and Life Sciences). This will include meeting the needs of employers, particularly in STEM subjects, for SCQF level 11 qualifications both as Integrated Masters and standalone Masters degrees.

When recruiting Graduate Apprentices for September 2023 starts about 20 places have been lost because employers could not recruit the right young people for their organisation, either because the pool of suitable applicants wasn't big enough or because of poor interview/assessment. We will support employers in terms of recruitment of young people. We have created a talent back where individuals can register their interest in one or more frameworks and with the correct permissions we will either notify them of relevant opportunities or send their CV straight to the business having already considered the entrance requirements. As many employers seem to leave their recruitment to the last minute, we are also making relevant enquirers through clearing aware of open opportunities.

We are also developing strategies and processes that will take our learnings from both GA and Upskilling Scotland and cascade them into more traditional programmes to ensure that what employers are telling us they need are also included in traditional undergraduate and postgraduate programmes.

# Priority area 5: Net zero and environmental sustainability response

### Planning and Governance

In 2020/21 the University adopted a new Global Environmental Sustainability (GES) Strategy featuring 10 key commitments<sup>1</sup> to enhance the institution's sustainability outcomes across operations, research, teaching and global advocacy. These included a central commitment to establish a date of between 2030 and 2035 for achieving net zero greenhouse gas emissions. The development of the University's net zero plan, in alignment with science-based target setting approaches, has significantly accelerated during 2023 following updated decarbonisation trajectory modelling encompassing the Scotland and international campuses. Publication of the plan is anticipated in late 2023 following further community engagement.

2023 saw the publication of the Royal Anniversary Trust report "Accelerating the UK Tertiary Education Sector towards Net Zero" and the associated Standardised Carbon Emissions Reporting Framework. HWU is aligning its approach and reporting, having contributed to the development of both documents as a participant in the Queen's Platinum Jubilee Challenge.

### Research and Innovation

The University's broader climate role includes significant impact from our research activities and their contribution towards the UN Sustainable Development Goals (SDGs). Research carried out at the University is now mapped against the SDG's 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 goals. The UK Industrial Decarbonisation and Research Innovation Centre (IDRIC), based at HWU, backed by £20M of investment, has now completed two years of activities and has successfully integrated strong and experienced teams of specialists across industry, business and academia to realise meaningful emissions reduction faster, at lower cost and risk.

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 Global Research Institute (GRI) in Net Zero, with a new multi-disciplinary research focus across themes including transport, geoenergy, circularisation and energy in buildings.

## Community Engagement and Co-development

The Sustainability Community Engagement programme is being co-developed to create a culture of sustainability across our global campuses. The programme will enable and empower our students, staff and external communities to become advocates for a more sustainable future. Over 300 responses to a student sustainability survey have been collected and will be presented in a report. A sustainability themed mural is being codeveloped with an artist and students at the Borders Campus. An Alumni survey was launched in July and a staff survey in August 2023.

During 2023 we continue working on the development of two core initiatives: (i) a climate literacy course (available to staff and students) will launch with a content co-development event and engagement in November 2023; and (ii) the Net Zero Community Hub¹, a new centre in Edinburgh with a digital presence across all of our global campuses for showcasing activities and innovations to address sustainability challenges.

HWU A collaborative project with regional and national partners is underway to develop a new active travel route between the Edinburgh campus and surrounding communities. The University led a community consultation process in summer 2023 that provided data indicating local endorsement of project plans, and which has fed into the detailed design process for the route.

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<sup>&</sup>lt;sup>1</sup> https://www.hw.ac.uk/uk/about/sustainability/strategy-policies.htm

### **Operational Emission Reduction**

Priorities in 2022/23 have included:

- A focus on further optimisation of existing building services and energy systems, via audit and improvement of building management system settings and strategies. This has yielded significant energy savings across both electricity and gas.
- Continued energy retrofit projects, including further LED lighting retrofit supported by the University's Salix Recycling Fund
- Ongoing work to develop our approach to decarbonising heat, including further consultant-led techno-economic modelling of options and, through an EPSRC-funded internship programme, development of digital-twin dynamic simulation models of several buildings at the Edinburgh Campus.

Implementation of our net zero plan will see work in these areas continue in 2023/24, and will be accompanied by the development of plans and delivery programmes across a range of related areas including sustainable construction, sustainable food, active and sustainable travel and supply chain sustainability.

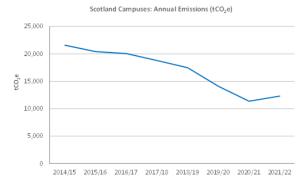
Despite significant growth in our physical estate and recovery of activity following the Covid-19 pandemic, our Public Bodies Climate Change Duties (PBCCD) reportable emissions from our Scotland campuses were reduced by more than 40% in 2021/22 relative to 2014/15 of mostly Scope 2 emissions. Further emission reductions are anticipated in 2022/23 owing to refining of building energy management strategies and continued energy-saving measures.

The table and graph below present the University's greenhouse gas emission baseline data and emission reduction performance, as reported within annual PBCCD submissions. The data relates to the Scotland campuses, and includes emissions associated with the operation of University buildings, business travel, management of waste and water consumption, across Scopes 1 to 3.

Annual emission performance – Scottish campuses (2022/23 figures pending):

	(baseline) 2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Target emissions (tCO <sub>2</sub> e)	21,583	20,936	20,288	19,641	18,993	18,346	-	-	-
Actual emissions total (tCO <sub>2</sub> e)	21,583	20,414	20,059	18,789	17,474	14,092	11,362	12,305	tbc
Actual emissions - Scope 1 (tCO2e)	7,324	7,138	7,423	7,911	7,512	7,084	6,627	6,751	tbc
Actual emissions - Scope 2 (tCO2e)	9,693	8,686	7,703	6,051	5,419	4,283	3,739	3,818	tbc
Actual emissions - Scope 3 (tCO2e)	4,566	4,590	4,933	4,827	4,543	2,725	996	1,736	tbc
CMP target reduction (%)	-	3	6	9	12	15	-	-	-
Reduction relative to 2014/15 Baseline (%)	-	5.4	7.1	12.9	19	34.7	47.4	43	tbc

<sup>\*</sup>adoption of interim targets embedded in Net Zero Plan, publication late 2023.



# Priority area 6 (Universities only): High-quality research and innovation

# Distribution of REG funding in AY 2023-24 and the functions that will be supported

The model for the distribution for the allocation of Research Excellence Grant (REG) funding in FY2023-24 will include an allocation to each of the School's to support core functions, including covering FEC shortfall on research funded projects. Additionally, there will be the creation of central fund that will be used to directly support strategic activity and assist in securing research momentum aligned to the University's Strategy 2025 - Shaping Tomorrow Together, "Excelling in Research and Enterprise"

This centralised allocation will help support and foster a positive and vibrant research culture, focusing on the provision of training/resources on i) Ethics and Academic Integrity, ii) Responsible Research and Innovation, iii) PURE data repository, to help in enhancing citations, since they reflect three of Heriot-Watt's Research Culture Objectives i.e. Strategy 1: 'Embedding Research Integrity/RRI'; Strategy 3: 'Promoting Research Recognition/Reward', and Strategy 5: 'Facilitating Open Research/Engagement'. In addition, delivery of 'PI Development' and 'Narrative CV' training will be delivered to reflect the recent changes and requirements for new UKRI Funding Service.

A 'REG Strategic Steering Group' will be established, chaired by Professor Steve McLaughlin, Deputy Principal Research and Impact. A process for the allocation of the central fund created will be established to ensure a transparent review of all cases submitted by Schools for additional REG funding, that directly support enhancing Research Culture at a local level.

## Use and Distribution of RPG Funding

Heriot Watt is moving to a position where Research Postgraduate Grant (RPG) allocations will be used to support our strategic objectives in developing our postgraduate research community to have the skills necessary to support a vibrant and modern economy. A proportion of the RPG funding will be used in conjunction with EPSRC and industrial funding to establish and support our Centres for Doctoral Training, which provide focussed investment into areas of research aligned to areas of strategic importance for HWU, including our Global Research Institutes in Robotics & AI, NetZero, and Health & Care Engineering and key strengths such as Quantum Technology, earth and marine environment.

In addition, we will support our University Graduate School, to be established from September 2024, which will include recruitment, administration and training and skills development support for Doctoral Students and Postdoctoral Research Staff. A working group has been established, led by the Global Director Research Engagement, to oversee the development and implementation of the Graduate School.

Prioritised activities to ensure our institution remains a viable research organisation. HWU is a research-intensive institution specialising in Science, Technology, Engineering, Business and Design. The University's Strategy 2025 - Shaping Tomorrow Together has "Excelling in Research and Enterprise" as one of its 4 main themes which aims to use our research and entrepreneurial approach to place us at the forefront of academic endeavour while making an outstanding impact on society. We aim to address crucial world issues through our interdisciplinary approach and close collaboration with industry and business.

This is exemplified via our business-focussed 'Global Research Institutes' in Robotics and AI, addressing Net Zero, in Earth and Environmental Science, and in Health and Care Engineering. Funds to underpin the establishment and activities of our GRIs will continue to address these key global societal challenges through our contributions to underpinning research in these domains and through collaboration with industry, business and policy makers to deliver solutions that support a vibrant and modern economy.

The focus on enhancing Research Culture for the research community has grown over the past year, and HWU has instigated several initiatives to stimulate more progress in this area. To support and empower research enabling staff HWU will continue to work towards enhancement of our Research Culture. A Research Culture Programme of activity is underway, and will continue during FY23/24, encompassing 5 themes: - Research Integrity; Responsible Research & Innovation - Collegiality; collaboration - Research Recognition; Reward - Research Careers; personal development; EDI - Open Research; Engagement. It will be overseen by a new Research Culture Working Group, ensuring future alignment between our Research Culture programme and the Researcher Development Concordat.

### Creating an excellent research environment and positive research cultures

In addition to our Research Culture Programme HWU will aim to strengthen the support it provides to research staff across the Institution by encouraging further engagement with training and online resources focused on their personal/professional development and career. Of note is the establishment of our Graduate school to specifically address the needs of our postgraduate research community. The importance of managers of researchers in facilitating the development of their research staff will be further emphasised through a new programme for mid-senior career research leaders. Greater skills and awareness related to EDI will be promoted through additional training opportunities for researchers (such as provided at HWU through the Disability Inclusive Science Careers project). The opportunities for enhanced networking and targeted support for the Research community will be further explored.

Support to underpin the activities of the Societal Engagement Programme Network (SEP-NET) will continue. SEP-NET is designed to bring together researchers and staff across all levels, from PhD students to Professors and technicians, who share an interest in societal and public engagement. The network aims to create an informal and supportive environment where participants can connect, discuss ongoing activities, and learn from experts in various fields.

HWU is a signatory to the Concordat to Support the Career Development of Researchers and a copy of the updated report has been submitted with the Outcome Agreement.

Annual Summary on Research Integrity 2022-2023.

# **Priority area 7: University Innovation Fund (UIF)**

Heriot-Watt's UIF plan for 2023/24 adopts a strategic approach designed to support the National Strategy for Economic Transformation and 'Entrepreneurial Campus Blueprint'.

The University's Strategy 2025 includes four strategic themes aimed at delivering transformative education on a global scale in addition to powering up innovation and enterprise. Through the University's internal strategic planning framework (AP2.0), we have set four priority objectives across our Business & Enterprise Directorate:

- 1. Increase income by growing strategic industry partnerships that unlock R&D funding and talent development opportunities.
- 2. Grow and enhance our global entrepreneurial community to attract and engage students and researchers.
- 3. Drive impact through commercialisation of research via new start-up and spin-outs.
- 4. Establishing a global innovation district through strategic 'place-based' partnerships

Phased investment from the University along with SFC/UIF funding will enable us to grow our business development and commercialisation capability and capacity. Our plans align with the following themes outlined in the 'Entrepreneurial Campus Blueprint' and core SFC outcomes:

**Demand Stimulation:** Expanding business development in priority areas: Health & Care Technologies, Earth & Marine Sciences, Robotics & AI, Quantum & Photonics, Net Zero & Energy Transition. Growing partnerships with Innovation Centres, Economic Development Agencies and Trade Bodies.

**Simplification/Commercialisation:** Increasing support for programs like iCure. Collaboration with Tech Scaler and Scottish Enterprise to enhance commercialisation outcomes.

Greater Innovation: Develop funding strategies, and foster collaborative R&D.

**Entrepreneurialism:** Launching a new Entrepreneurial Journey; enhancing the Global Innovation Challenge to inspire and support student entrepreneurs; launch of a new Entrepreneur-in-Residence program, leveraging expertise from seasoned entrepreneurs.

**International Activity:** Developing investor relationships across UK, UAE, Malaysia; introducing early-stage companies to new opportunities through HW@COP28 in Dubai.

**Inclusive Growth:** Partnering through the Edinburgh & Southeast Scotland City Region Deal, South of Scotland REP, and Islands Growth Deal for regional growth.

**Equality & Diversity:** Reinforce equality in recruitment and public engagement. Collaborating with other university partners to develop approaches to enhance EDI.

In summary, the UIF Plan for 2023/24 is focused on delivering quality outcomes aligned with sustainable economic growth by fostering innovation, entrepreneurship, and regional development.



# Heriot-Watt University University Innovation Fund Plan 2023/24

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# **Heriot-Watt University – University Innovation Fund Plan 2023/24:**

Heriot-Watt University contributes to all seven outcomes and supports Scotland's National Strategy for Economic Transformation and the principles behind the Entrepreneurial Campus for Scotland's post-16 education institutions.

The University's Strategy 2025 includes four strategic themes that set out to deliver transformative education on a global scale in addition to powering up innovation and enterprise.

Through the University's internal strategic planning framework (AP2.0), the University has set four priority objectives for its Business & Enterprise Directorate:

- 1. Grow strategic industry partnerships that unlock R&D funding and talent development opportunities [aligned with outcomes 1, 3, 5, 6]
- 2. Grow and enhance our global entrepreneurial community [aligned with outcomes 2, 4, 5, 6, 7]
- 3. Drive impact through commercialisation through new start-up and spin-outs. [aligned with outcomes 2, 4, 6]
- 4. Establish a global innovation district through strategic 'place-based' partnerships [aligned with all outcomes]

The work of Heriot-Watt will help Scotland achieve its green recovery ambitions and just transition to a net zero carbon society. Heriot-Watt's global R&D focus and industry engagement plan around net zero is broad and leverages our expertise in decarbonisation, transport, materials, and manufacturing. Furthermore, the University is developing thematic areas of focus in areas such as Hydrogen and Renewable Energy. Moreover, the work in commercialisation and entrepreneurship is aligned to our global research areas. This is evidenced by two recent successes in Converge, securing the top two places within the Net Zero Category.

Heriot Watt will utilise and match the Platform Grant and will receive an additional £245k (over 2023/24) with the additional activity supporting key Scottish Government policy drivers. Through our involvement in RCDG, we will seek out collaboration opportunities where appropriate. Furthermore, 2023/24 plans align with the themes outlined in the 'Entrepreneurial Campus Blueprint' and map directly to the following SFC outcomes:

#### 1. Demand stimulation

The University will grow its team and business development activities focusing on core research strengths to promote greater innovation. It will expand partnerships with innovation centres such as CENSIS and innovation agencies such as Scottish Enterprise, South of Scotland Enterprise and Highlands and Islands along with trade bodies. This will be made possible through the UIF and new uplift funding. Working with Barclays Eagle Labs, it will seed SME collaborations in Robots. Industry engagement strategies will be developed during 2023/24 in the following five priority areas:

Health & Care Technologies	Earth & Marine Sciences	Robotics & Al
Quantum & Photonics	Net Zero & Energy Transition	1

(with specific opportunities in: Transport, Materials, Manufacturing, Offshore Engineering & Hydrogen)

# 2. Simplification / commercialisation

The plan for 2023/24 involves increasing core support for commercialisation. Targeting programs like iCure and the High Growth Spinout Programme will create a large opportunity pipeline. Over 2022/23, we have seen a notable improvement in our track record, demonstrating the effectiveness of our existing efforts. Building on this momentum, commercialisation opportunities will receive enhanced support from a scaled-up team including a group of high-profile EiRs and professional advisors. Increased resource from the UIF uplift will result in greater market engagement, enhancing commercialisation opportunities and strengthening industry partnerrships. Simplified university processes, bolstered resources and strong project management will ensure opportunities are optimally developed to align with the needs of the early-stage entrepreneurs and new ventures. Through these targeted efforts, a more supportive environment for commercialisation will be realised, ultimately contributing to the growth and success of high-potential ventures.

Through consultations with Tech Scaler, Scotland's Chief Entrepreneur, SFC, and enterprise agencies, we will offer guidance on the 'Framework for Change,' aiming to incentivise universities to deliver quality commercialisation outcomes. The Business & Enterprise consistently strive to align program goals with economic development metrics used by Scottish Enterprise, Highlands and Islands Enterprise, and South of Scotland Enterprise.

### 3. Simplification / greater innovation

2023/24 plans primarily focus on developing new funding strategies and increasing investor engagement to foster innovation and business growth.

Business development activity will focus on the five priority research themes, supporting the growth of four global research institutes. A revised 'business development playbook' and 'strategic proposal blueprint' will be published within the University with the aim of increasing collaborative R&D and achieving high levels of satisfaction amongst researchers and industry partners. We will continue to advance our data and AI capabilities to identify trends/issues and use this information for continuous improvement. This will also support further development and implementation of monitoring frameworks to monitor impact of KEIF related activities.

# 4. Entrepreneurialism

In light of the UIF uplift, we will increase primary activities which will involve releasing an updated Entrepreneurial Journey for Heriot-Watt students and staff, delivering new Female Entrepreneurship events, and supporting under-represented groups to ensure diversity and inclusivity.

An enhanced Global Innovation Challenge (GIC) will inspire students worldwide to partake in impact-driven entrepreneurial activities (including social entrepreneurship), facilitating increased global collaboration across Scotland, UAE, Malaysia, and Heriot-Watt Online programmes. Ultimately, these efforts aim to empower the upcoming generation of entrepreneurs with essential resources, knowledge, and networks to thrive in the dynamic global landscape.

Extra-curricular activity will be enhanced by increasing the number of student enterprise ambassadors and providing them with comprehensive training and ongoing support to ensure their success. This comprehensive approach will ensure our ambassadors are well-

equipped to represent the 'Entrepreneurial Journey' effectively and contribute to overall outreach.

More Bootcamps/Workshops will be delivered along with extended support for Converge applicants. Additional resource will be used to scale up advisory support and improve our online engagement channels to extend the reach of our services.

The University has recently signed a MoU with Codebase and continues to engage with the Tech Scaler to identify opportunities to integrate content as appropriate. The Business & Enterprise Directorate will engage with other institutions and accelerators around the world to identify best practice and develop a series of recommendations for a revised incubator model.

Launching an Entrepreneur-in-Residence program targeted at the commercialisation of technology through spin-out and start-up creation is a strategic move for fostering innovation and economic growth. Throughout 2023/24, seasoned entrepreneurs will be onboarded with a track record of success, to act as mentors and guides to aspiring entrepreneurs and researchers looking to transform their technological innovations into viable businesses. Furthermore, the EIR activity aims to enhance the creation of spin-outs and start-ups by providing the necessary resources, networks, and support, thereby accelerating the commercialisation of cutting-edge technologies.

Ultimately, the EiR program serves as a catalyst for technological advancement, economic development, and job creation by supporting the growth of new businesses that bring innovative solutions to the market.

Additionally, the University will launch an accelerator support program in partnership with Barclays Eagle Labs, supported by the Digital Growth grant, to expedite the growth of early-stage start-ups by providing essential resources, mentorship, and scaling support. This collaboration, leveraging the Digital Growth grant and UIF/University funding, will offer participants access to a network of industry experts, investors, and entrepreneurs, alongside workshops and events, ultimately fostering innovation, job creation, and regional economic development by supporting the next generation of high-growth start-ups.

Funding support for Proof of Concept (PoC) and raising seed and follow-on funds are paramount for validating, initiating, and sustaining innovative projects or start-ups. Similarly, match funding for GIC will bolster the prize money by matching funds raised from other sources, making the competition more enticing and encouraging innovative solutions to global issues. Additionally, funding will be used to leverage Heriot-Watt's existing Buchan Innovation Fund that provides co-funding for early-stage ventures and commercialisation projects. Through the next annual planning round, the Business & Enterprise Directorate will develop a proposal for a new seed fund, for providing initial capital to start-ups and spinouts.

During the 2023/24 academic year, we plan to develop a new online entrepreneurship module, which will be a vital addition to our existing offering. This will incorporate practitioner-based learning, an approach that combines theoretical knowledge with practical insights from experienced entrepreneurs, thereby providing students with a holistic understanding of the entrepreneurial journey. Additionally, the module will feature case studies that are carefully selected to align with our strategic themes, ensuring that the content is relevant, up-to-date, and addresses the current challenges and opportunities in the entrepreneurial landscape.

# 5. International activity

An investor engagement campaign will target active investors across the UK, UAE, and Malaysia. This campaign aims to connect opportunities across campus locations, thereby accessing new markets and fostering international collaboration and new sources of investment. An example of this will be HW@COP28 which is a fringe event introducing 10 early-stage companies to investors and partners through our Dubai based campus. Moreover, the Business & Enterprise will continue to identify new opportunities internationally across business development and commercialisation.

### 6. Inclusive growth and social impact

With campuses in three separate Scottish regions (Scottish Borders, City of Edinburgh, and Highlands & Islands) the Business & Enterprise Directorate and wider University is actively engaged with key regional stakeholders working to drive inclusive sustainable growth and stimulate demand and quality of engagement between businesses, public sector, and universities. Additional UIF funding will support the ongoing engagement and development of a longer-term regional strategy that aligns to the ambitions of the following growth deals:

### Edinburgh & Southeast Scotland City Region Deal

The Edinburgh and South-East Scotland City Region comprises six local authorities: East Lothian, Edinburgh, Fife, Midlothian, Scottish Borders, and West Lothian. We will continue to engage through the Data-Driven Innovation Programme (DDI) and plan to grow the number of start-up and spin-out opportunities associated with the National Robotarium and GRID at Heriot-Watt. Furthermore, we will expand our relationship with University of Edinburgh to drive new opportunities in Health & Care Technologies, building on recent momentum around medical device manufacturing.

Our 2023/24 plans include the development a new early-stage accelerator programme initially targeting Robotics and AI start-ups/spin-outs and this will leverage funding recently secured through the Barclays Digital Growth Grant. Significant staff time will go into the design and development of the programme and funding from UIF uplift will contribute towards the pre-work

South of Scotland Regional Economic Partnership (REP) & Borderlands Growth Deal The Borderlands Partnership exists to unlock the potential for sustainable and inclusive economic growth across the South of Scotland and North of England. Through our continued engagement in the South of Scotland REP, resource will be committed to developing a business case and options appraisal that aims to grow our business engagement and enterprise activity within the Borders. Through the recent SFC activity, we have discussed potential collaboration with University of Glasgow, and this will be explored further in Q1/Q2 of the academic year.

### **Islands Growth Deal**

The recently funded Islands Growth Deal seeks to drive economic growth and the creation of sustainable jobs across Shetland, Orkney, and the Outer Hebrides. Heriot-Watt, Robert Gordon and University of Highlands and Islands are collaborating on a proposal to establish TalentED within the deal. This aims to grow entrepreneurship across the Islands and provide a commercialisation fund. UIF funding will contribute towards further engagement and refinement of the business case along with stakeholder engagement, and we aim to secure final approval from UK/Scottish Government in late 2023/early 2024.

### 7. Equality and diversity

In 2022/23, the University appointed an Associate Principal for Enterprise to support the Deputy Principal for Business & Enterprise and work alongside the Chief Entrepreneurial Executive. Throughout 2023/24, our leadership team will promote and evangelise the revised 'Entrepreneurial Journey' and seek to collaborate with the University of Edinburgh to

enhance approaches to EDI across our offering. Best practice will be shared with other institutions through RCDG with the intention of securing one case study by the end of 2023/24.

Additionally, the Business & Enterprise Directorate plan to support the Digital Xtra Fund by offering a small prize fund and judging support, this will aim to drive equality and diversity in our recruitment and public engagement activity, this activity has only been possible through the UIF uplift funding. Through these targeted efforts, we aim to cultivate a culture of innovation and entrepreneurship from a young age, ultimately contributing to a robust and dynamic talent pipeline that will drive future economic growth.

Our strategy for expanding the talent pipeline encompasses multiple facets, including presenting at local secondary schools and exploring new channels of engagement. We intend to review our recruitment initiatives, prospectuses, and case studies and reinforce where possible an entrepreneurial mindset.

In summary, our UIF Plan for 2023/24 aligns strongly with the principles outlined in the 'Entrepreneurial Campus Blueprint' and is focused on delivering quality outcomes aligned to sustainable economic growth.

# 8. Prospective Partnership in Action Case Studies

# Case Study: Hydrogen Works (with Logan Energy)

A new centre for green hydrogen innovation and product development was launched by Heriot-Watt University in collaboration with hydrogen technologies experts Logan Energy and PlusZero.

The newly named 'Hydrogen Works' building brings together a consortium to collaborate across a range of hydrogen-related research and industry projects including clean-power generators, state-of-the-art refuelling infrastructure and cutting-edge energy systems for heavy industry.

As part of Heriot-Watt University's pioneering strategy to engage with business and become leaders in sustainability, it is reshaping its Riccarton Campus in Edinburgh to house innovative companies and clusters, including Logan Energy and PlusZero.

## Case Study: Cask Maturation (with Diageo)

Food and Drink is the UK and Scotland's largest manufacturing sector. The Scottish whisky industry has huge economic importance - providing an export value of £6.2 billion to the UK economy with on average, the equivalent of 53 bottles of Scotch Whisky exported every second.

In March 2023, Johnnie Walker owner Diageo teamed up with scientists from Heriot-Watt to investigate how whisky gets its flavour from cask maturation. Through the collaboration, development of a new machine learning tool is underway. This is backed by huge amounts of data, that will make sure the right barrels are used for the right amount of time to produce the right flavour characteristics in each whisky. The aim is to significantly enhance whisky production, giving better data upon which to base fundamental decisions, such as how long a whisky should stay in a barrel.

The work includes researchers from the International Centre for Brewing and Distilling (ICBD) at Heriot-Watt, but also scientists who specialise in chemistry, physics, machine learning and data science.

### Case Study: SmartTrawl (with Fisheries Innovation & Sustainability)

Trawling is a fishing practice that herds and captures target species, like fish or prawns, by towing a net along the ocean floor. This method of fishing is known to cause discarding and bycatch, where fish or other marine animals are accidentally caught and returned to the sea, most often dead. According to global marine fisheries data, it is estimated that 46% of all marine fish that are discarded come from this method of fishing. An underwater robotic sorting device which helps fishing trawlers prevent bycatch by identifying and sizing fish and other marine life in real-time is being developed by researchers from Heriot-Watt University in partnership with Fisheries Innovation & Sustainability (FIS) and funded by the UK Seafood Innovation Fund.

SmartTrawl uses Al-technology to determine the individual size and species of marine life captured inside a trawl net using images taken by an underwater stereo camera. It then releases or retains each marine animal depending on whether it qualifies against a trawler's intended catch using a computer-controlled robotic gate.

The technology is currently being developed and plans to commercialise are underway.



# Outcome Agreement between Heriot-Watt University and the Scottish Funding Council for AY 2023-24

# On behalf of Heriot-Watt University:

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Print name: Professor Richard A Williams

Position: Principal and Vice-Chancellor

Date: 16<sup>th</sup> November 2023

Signed:

Print name: Mr Bruce Pritchard

Position: Chair

Date: 16<sup>th</sup> November 2023

# On behalf of the Scottish Funding Council:

Signed:

Print name: Karen Watt

Position: Chief Executive

Date: 15 January 2024

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