

ANNEX A

Glasgow Caledonian University – University Innovation Fund Submission 2019-20

UIF Platform Grant

Our Strategy 2020 sets out the University's vision, as the University for the Common Good, to deliver social benefit and impact through education, research and innovation. We will match the platform grant with ongoing activities and support to promote and increase the innovative capacity of the University, through: applied research and knowledge exchange for key sectors of the Scottish economy, student enterprise, Graduate and Degree Apprenticeships, social innovation, and public engagement. The Research and Commercialisation Directors' Group (RCDG) acknowledges that for the best use of resource, each university will be involved with a different combination of work towards the sector outcomes. GCU participates in the groups for outcomes one to seven and seeks to align our skills to each outcome to ensure full participation.

UIF Outcomes Grant

Outcome One: Demand stimulation

GCU actively engages with staff to ensure that we continue to deliver our strong pipeline of KTP projects from our areas of research expertise, whilst broadening our Innovate UK applications to other Collaborative Research and Development bids and Industrial Strategy Challenge Fund (ISCF) bids. The University's Research and Innovation Office (RIO) is working with individual Research Centres and academic Schools to develop long-term Scottish and UK funding solutions through the SFC Innovation Centres and Research Pools, such as the Energy Technology Partnership (ETP); and working with Academic staff to develop a 'can-do' culture approach with SMEs and larger companies to encourage economic growth on a local and national scale.

A key priority in stimulating demand for innovation services and simplifying access to University capabilities is taking a more collaborative approach to delivering a programme of Innovation Challenge events aimed at understanding and addressing key industrial challenges which can be developed into expressions of interest and used to influence future waves of the ISCF. A key aspect of these demand led workshops will be a focus on SME participation, supply chain development and leveraging the UK and international industry networks of all partners. GCU intends to be an active participant and in particular has key strengths and potential to lead consortia development in areas such as Construction, Health and Smart Technologies. We will strengthen our focus on the Scottish Government priority economic sectors of Food and Drink, Energy, Creative Industries and Sustainable Tourism through our research centres whilst broadening our engagement across Financial Services and Life Sciences.

RIO and our School of Computing, Engineering and Built Environment are linking activities to potential funding opportunities, including the ISCF, including from the Artificial Intelligence Research Lab; Smart Connectivity and Sensing; Nature Based Solutions & Eco Engineering; Engineering Simulation & Advanced Manufacturing (ESAM); Water; Sustainable Materials & Structures; Power and Renewable Energy Systems (PRES); Applied Games and Engaging Technologies; Cyber Security, Networking and Communications (CSNC); Construction.

We work closely with the West of Scotland KTP Centre to deliver training and to run a series of KTP drop in events and seminars to help staff to explore new opportunities and increase our KTP pipeline, which will enhance skills for effective collaboration within the academic and SME business base (**PA5**). We have a long and successful partnership with Interface, and support the SFC Innovation Voucher Scheme and follow on schemes. We run a series of Interface Workshops and drop in events to help staff to improve conversion of Innovation Vouchers to the new Advanced Innovation voucher scheme and aim to build on transactional approaches to longer-lasting, strategic relationships with Scottish and UK businesses.

As a partner in the Centre for Engineering Education and Development (CEED) Scotland, we host events at GCU for businesses to view our facilities and hear about our expertise. GCU's Institute for University to Business Education focuses on the development of bespoke, co-created corporate academic programmes at undergraduate and postgraduate level. Industry links and collaboration with SMEs and large employers are managed through a combination of structured programme-specific advisory boards, dialogue with subject matter experts and business development outreach and engagement.

Outcome Two: Simplification/Commercialisation

The University is fully committed to the use of standard template agreements that have been developed by the RCDG Contracts group to simplify University-SME engagement **(PA7)**. We are continuing to support the RCDG Spin Out support group, to ease understanding and transparency of common principles adopted by Scottish HEIs and encourage new company formation. GCU is continuing to work to implement the post-project protocol activity **(PA8)**, aligning our activity with the SFC Innovation Centres **(PA6)** and looking for ways to maximise opportunities from business partners to create new and innovative ways of working. GCU's new focus is on building longer-term strategic relationships with companies, rather than one-off interventions **(PA6)**.

We have set up a National and Commercial Innovation Unit to drive the innovation and entrepreneurial culture across the University through an integrated approach to Research and Innovation Support. This Unit is led by GCU's Knowledge Exchange Manager and oversees the delivery of the University Innovation Fund outcomes. A programme of internal workshops is being implemented in relation to the funding being offered by the UK Industrial Strategy and the Scottish Government. The Unit is actively engaged in the developments around the Knowledge Exchange Framework and implementing the metrics and best practice. This has been evidenced by the ongoing Pre- and Post-Award Research Review. Consideration is being given to data governance and the approach to collating each metric return.

We are in the process of establishing a SMART Technology Centre to harness the University's collective intellectual capital and advance fundamental theories, designs, methods, processes and tools about smart technologies through an application-led approach. The University's Research webpages are being redeveloped to provide clearer navigation to targeted UKRI areas and Scottish Government priorities, including more interactive case studies for business users. We are in the process of finalising our profile on Konfer (the UK-wide innovation brokerage tool developed by the National Centre for Universities and Business), working closely with the National Centre for Universities and Business (NCUB) and its partners.

Key successes and areas of focus:

- Funding has been secured from the Construction Scotland Innovation Centre for a Site Efficiency Study Programme between the Built Environment Asset Management Centre (BEAM) and the Stewart Milne Group. The BEAM Centre also aims to provide pump-priming for industry-focused innovation challenges in built-asset management areas and will seek to develop new partnerships in this area. The BEAM Centre has won a GCRF grant (NERC funded) to provide climate science services to assist the decision-making on the preparedness and resilience to heat exposure risk during heatwaves in Sri Lanka's capital Colombo for the current and future climates (Project Name: COSMA). Partners include University of Reading, University of Moratuwa, Sri Lanka and the Urban Development Authority of Sri Lanka.
- We have secured new KTPs this year in the Department of Computer, Communications and Interactive Systems (CCIS) at GCU on software systems integration using natural language processing and on automated image processing and analysis of outdoor physical infrastructure.
- GCU's successful collaboration with Geckotech Solutions Ltd has helped the company to launch a dedicated Research and Development department which has secured funding for various projects with GCU, including two KTPs, a Data Lab Innovation Centre funding for a 4-year Industrial Doctorate, a PhD

scholarship and several student projects to support the company's services in visual inspection and condition monitoring.

- The Energy Monitoring & Diagnostic Systems group will build on its work with external clients to design, develop, evaluate and deploy diagnostic systems and sensors for applications in energy and environmental monitoring. GCU has secured a new commercial R&D contract with Doble Engineering for the use of machine learning for power asset conditioning monitoring.
- The primary national indicators for performance of National Tourism in Scotland, developed and monitored by GCU's Moffat Centre for Travel and Tourism, are vital in ascertaining the economic value of tourism to Scotland. The Moffat Centre has devised a tourism masterplan to attract thousands of extra visitors to the west coast of Scotland. Branded 'Five Routes – One Great Adventure', the project has been developed by the Moffat Centre in partnership with North Coast 500.
- We will grow our pipeline of work with commercial clients in our Food Laboratory, which works with SMEs and large food companies carrying out a range of shelf life testing and nutritional analysis building upon our existing work with the University of Abertay. A focus for the department of Biological & Biomedical Sciences is our work with large commercial partners on the viral safety challenges facing the food industry.

Outcome Three: Simplification/Greater Innovation

GCU's research strategy addresses three societal challenges (i) Inclusive Societies (ii) Healthy Lives (iii) Sustainable Environments. The broad themes are: Public Health, Long-term Conditions, Social Innovation, Equalities and Justice, Urban Environments, and Efficient Systems. We are committed to encouraging mobility of staff between business and universities (**PA3**) and the transfer of the knowledge that we produce through our research is linked with the Scottish Government National Priorities in key areas. This will build upon our portfolio of strategic research partnerships with public, private and third sector bodies. We support sector wide additional capacity through collaborative activity to target ISCF and UKRI innovation funding.

The University's support for Research and Innovation has been enlarged and restructured to better reflect the overall innovation of the University, comprising five Units of Activity: Research Excellence, National and Commercial Innovation, Social Innovation, Global Challenges and Sustainable Development, and International Projects. The Units have developed a series of workshops to encourage innovation practice within the University, including: CEED KTP Event; Sustainable Development Goals; Research Data Management for Administrators and digital curation; KTP Drop in days; Global Challenges events; Interface drop-in days; Industrial Strategy Event with Innovate UK. We will develop tailored KE funding packages with Schools, with the help of the Impact and Knowledge Exchange officers and help academic staff to deliver impact to society, public policy, private sector and the economy.

GCU is committed to the development of research and KE staff (**PA4**), of which 'Enhancing researcher skills for business engagement' is a key focus, and will continue to engage with PraxisAuril and ARMA. Working collaboratively through the UIF framework we will build on our existing strengths in the GCU Graduate School and our HR Excellence in Research Award; and share good practice and explore new mechanisms for opening up training opportunities to partner universities on a reciprocal basis. Our Development of Academic Researchers in Excellence (DARE) programme builds on existing excellence in the support of emerging researchers, including supporting ECRs to develop their innovation knowledge and skills. Through the work of the University's Impact and Knowledge Exchange officers, there will be a series of Impact workshops to demonstrate how innovation can be implemented, measured and demonstrated.

The Institute for University to Business Education focusses on national and transnational business engagement creating staff mobility through relationships with business, public and third sectors, including SSE, North and South Lanarkshire Councils, Transnet Freight Rail (South Africa), The Institute of Railway Operators and the Ghana Petroleum Commission.

Outcome Four: Entrepreneurialism

The University has a Strategy for Learning in place which supports the development of entrepreneurial and employability skills through core and/or co-curricular activities such as volunteering, internships, and authentic projects and for such activity to count towards a degree award **(PA1)**. Such activities are highlighted in our Annual Enterprise Fair, Enterprise Funding availability (through our partnership with Santander Universities) and in our bi-monthly Enterprise lunch workshops, showcasing successful GCU entrepreneurs and Enterprise Mentors **(PA2)**. We will continue participation in Converge, RSE Enterprise Fellowship, AccelerateHer, Scottish Edge, Entrepreneurship Scotland and other programmes, as well as organisation of regular seminars and workshops. We will undertake a programme of workshops on social innovation in collaboration with the Students Association, employing design thinking and creativity tools to help students develop entrepreneurship ideas.

We actively promote graduate enterprise via our UHatch enterprise incubator which has registered over 45 graduate businesses with a collective turnover of £1.4 million. Our graduate companies are active recipients of awards from: RBS Edge Funding, Enterprise Campus, Converge Challenge, Virgin Money (Vroom), Santander Enterprise Universities, Stirling District Council and the Enterprise Value challenge (via trading projects) **(PA1)**. We are refining the process and governance of UHatch, to ensure that its activities work within the Framework defined by the RCDG Entrepreneurialism working group. UHatch will also seek to create pipelines of activity with other areas such as the Student Association feeding into the Leadership Programme which incorporates streams focused on Social Innovation. UHatch will incorporate a co-working space and seminar facilities in order to serve a large critical mass of students. We will further develop long term enterprise support for long term users of the UHatch incubator. For example, two enterprises from U-Hatch, Hippo and Hedgehog (social enterprise which has developed a baotic health drink) and Giraffe Healthcare (CIC engaged in the remote delivery of high quality, personalised health care services backed by expert advice and support) have both emerged from RSE fellowships and will be re-integrated within the University.

GCU's international experience in the development of social innovation support, and its unique network within the Social Enterprise community (eg collaboration with CEIS for the delivery of the Social Enterprise World Forum) is being further strengthened through new initiatives overseen by a new social innovation manager and opened up to other members of the RCDG Social Enterprise strand. The University is also establishing Social Innovation Knowledge Exchange Units in both Glasgow and Edinburgh (working alongside Social Enterprise partners such as The Melting Pot) as part of a groundbreaking Europe-wide project (coordinated by GCU) to improve University engagement in social innovation and social enterprise through knowledge exchange.

Outcome Five: International

We have established international partnerships and projects that specifically aim at achieving the UN's 17 Sustainable Development Goals through social innovation, and exploring ways to lend social value to the knowledge produced by GCU. GCU is committed to the UN Principles for Responsible Management Education (PRME) initiatives. This has contributed to our success in the international Times Higher Education University Impact rankings, placed in the top 50 globally. GCU has accumulated an impressive portfolio of international projects especially under the EU's Capacity Building in Higher Education Programme. The most prominent theme within these projects has been the development of units for supporting social innovation: the Southeast Asian Social Innovation Network (Malaysia, Thailand, Myanmar and Cambodia) and the Latin American Social Innovation Network (Chile, Colombia, Panama and Brazil). Another network in South Africa has established support for digital storytelling. Over the coming year the networks will be consolidated into a Global Network for University–Social Innovation Interaction. These networks are growing and all Scottish HEIs will be invited to collaborate within them.

Through our Centre for Climate Justice, GCU will continue to carry out work in the area of international development through research and partnerships in Malawi, Zambia, Rwanda, Ghana and Nigeria. The Centre's director delivered a presentation on the Final Report findings during the 2018 Arctic Circle Assembly in Reykjavik. The Centre also delivered evidence to the International Development Committee at Westminster.

As part of our institutional support for GCRF we have established a Global Challenges and Sustainable Development Unit, whose remit will extend beyond the limitations of attracting national funding. DFID and Innovate UK initiatives will be developed through networks which have been nurtured over recent years and through new collaborations, especially with private and third sector partners such as Challenges Worldwide. In December a call was published internally for the first round of funding offered by the Unit. The funding was aimed at supporting academics engaged in ODA compliant activities through Capacity Building, Pump Priming or ECR Fellowships. The projects covered: Microfinance in Rwanda (Pump priming); Female entrepreneurship in Nepal (ECR fellowship); Microfinance networks in Latin America (ECR fellowship); Visual impairment in Ghana (pump priming); Sustainable management and climate change mitigation in Brazil (ESR fellowship); Undergraduate education of podiatrists in South Africa (capacity building). More Capacity Building projects under the CBHE programme are being implemented: Social Innovation in Southeast Asia – SEASIN; Intercultural Competence within Latin American universities – PROFIC; Female entrepreneurship programme in India – EMPRENDIA; Education, Research and Innovation in GIS, SID and remote sensing in Southeast Asia – NEXUS; Disability support in Indonesian Universities (INDOEDUC4ALL); Entrepreneurship in Central America (FREE-NET).

Outcome Six: Inclusive growth and social impact

GCU has been a signatory to the National Coordinating Centre for Public Engagement's (NCCPE) 'Engaged University' manifesto since 2012. GCU's Engagement Map captures social innovation collaborations between GCU and the wider community. The Research and Innovation Office has developed a Social Innovation Knowledge Unit which will be the responsibility of the newly appointed Social Innovation Adviser within RIO. It will have a prominent and cross-cutting role within the university with clear links to University strategy, supporting not just research, but also curriculum development, business support services and public and community engagement. The Unit will also underpin the Scottish activities of the SIKE Project, funded (1m euros) by the EC's Knowledge Alliances Programme and coordinated by GCU, which has developed an HEI-social innovation network across five European regions. The Unit is also developing a global platform for Social Innovation-HEI engagement as well as supporting social enterprises developed within the UHatch incubator. As described above, two of GCU's social enterprises have received RSE funding for healthcare products.

GCU's Yunus Centre for Social Business and Health investigates the relationship between social enterprises and third sector organisations and how these might impact indirectly on health through addressing upstream social determinants. We will continue to evolve our unique portfolio of social enterprise research and innovation projects at a regional, national, and international level, including initiatives involving partners at other Scottish institutions involved in providing sustainable and effective support to social entrepreneurs (**PA6**), funded through streams such as European Knowledge Alliances and Scottish Government's Social Innovation Fund. GCU is leading on a series of major EU projects dealing with the social impact of refugees, e.g. SIRIUS and the GCU-led VOLPOWER project. The GCU-led, EU-funded project, Common Good First project focuses on building a network to showcase and connect social innovation projects in South Africa and Europe.

The University has established the Centre for Living which will make a direct and significant contribution to the UN's Sustainable Development Goal *Good Health and Well-being*. The Centre brings together research expertise largely drawn from the School of Health and Life Sciences (SHLS) along with the co-hosted and Chief Scientist Office funded Nursing, Midwifery and Allied Health Professions Research Unit (NMAHPRU) and our strategic partnerships with Health Protection Scotland and NHS Lanarkshire. It will organise its research around

two themes in (i) Public Health and (ii) Long Term Conditions. The Centre will increasingly target global funding calls from UK and wider sources.

Outcome Seven: Equality and diversity

GCU's commitment to build on good practice and positively promote equality and diversity in staff and others who are affected by the use of the UIF has primarily been through the implementation of our Equality Outcomes 2017-2021, published in April 2017. To help inform our work further, the University has engaged externally with other HEIs through a workshop and subsequent recommendation for joint projects, aimed at embedding Equality and Diversity within the innovation environment. Our equality outcomes are aligned with our research activities, many of which have the principles of equality and diversity at their heart.

GCU is growing its involvement in driving for a more equitable and diverse community both within the University and beyond through the WiSE Research Group and its public sector collaboration. WiSE researchers launched the RESPOND project on migrant reception and settlement and treatment of asylum seekers at GCU in February 2019 with an extensive range of third, community, and statutory organisations present. The Director of WiSE is a member of the SG Gender Equality Index Working Group; and has been providing advice and guidance on equality impact assessment on the Scottish National Investment Bank and Flexible Workforce Development Fund. WiSE will build upon its management of a Scottish Parliament Research Fellowship on employer equality practices and the European Institute for Gender Equality - assessing gender budgeting analysis in relation to European Structural Funds. WiSE will also leverage its activities in the voluntary sector such as STUC Women's Committee, Close the Gap, Engender, Scottish Women's Budget Group, UK Women's Budget Group, and European Gender Budgeting Network.

The centre will help to define future practice in equality and diversity through its membership of Scottish Government Equality and Budgets Advisory Group (EBAG). In Spring 2019, *Gender budgeting in ESFIs* project outputs are being published and the SHRC Human Rights Budgeting project outputs are being launched. Work in Scotland on gender budgeting will inform a new project commencing in March 2019 with the Wales Centre for Public Policy scoping the implementation of gender budgeting by the Welsh Government. The outputs from the EIGE project, and Wales and Scottish Government projects will be the focus of papers at panels at the annual conference of the International Association for Feminist Economics (IAFFE) being hosted at GCU in June 2019. A series of additional events are being organised on the fringe of the conference to boost engagement and outreach with community and civil society organisations in Scotland.