MASI

DISCOVERY & INNOVATION
TO CHANGE THE WORLD

DARGNFOD AC ARLOESI
I NEWID Y BYD

ANNUAL REPORT

2022

Swansea University
Prifysgol Abertawe

Introduction

The First Minister of Wales launched the Morgan Advanced Studies Institute (MASI) on February 26th, 2021. We are Wales' first Advanced Studies Institute focused on transformative transdisciplinary research.

MASI is growing a vibrant, large-scale community, a movement with an urgent purpose to respond to the world's most critical opportunities and challenges. It brings people together from across all disciplines to discover and innovate processes, materials, technologies, policies and practices that will make the world more sustainable, just, well, joyful and hopeful.

MASI will help drive the university forward, serving the city, region, Wales and the world with world–class research and enterprise. It also acts as a BaseCamp, gathering groups to be trained, motivated and encouraged to set their eyes on the highest of intellectual and impactful summits, preparing us to attract the significant external funding needed to be an effective agent of change. MASI is named after the late Rhodri Morgan, former First Minister of Wales and Swansea University Chancellor whose passion for Wales and its place in the world, continues to inspire us.

In this first Annual Report, we highlight the key activities and achievements of the Institute and look to the next steps in the Academic Year 2022/2023.

Meet the Team

Ellie Carpenter
Marketing & Comms Officer

Dr Jen Pearson
Research Entrepreneur

Prof Matt Jones
Director of MASI

Dr Simon Robinson
Research Entrepreneur

Heidi Rees
Senior Project Officer

The MASI Team & Resources

Professor Matt Jones is MASI's Director, focused on nurturing the pan-university transdisciplinary culture and community. **Dr Jen Pearson & Dr Simon Robinson** are Research Entrepreneurs acting as ambassadors for MASI across the university, finding and connecting talents within and beyond the institution's research community to build capacity for transdisciplinary research and innovation.

They will contribute to the development of new networks across Faculties and outside the university, and design and build new systems and methodologies to support and provoke creative, disruptive, and adventurous research and innovation.

Heidi Rees and Ellie Carpenter work to ensure the smooth running of the Institute and to promote and sustain our connections across the university and beyond.

Our core team is complemented by the MASI Fellowship. After an Open Call eight Fellows were selected from twenty applicants – two academics from each Faculty and two from the Professional Services, one at the "early" the other "established" career stage – to both help ground MASI's work in the wider university context and to assist in finding connections and opportunities.

In resourcing the Institute, the university provides a staff budget to provide for' to 'In resourcing the Institute, the university provides a staff budget for: 50% of Jones' time as Director, 20% each for the Research Entrepreneurs; and 50% of both of our Professional Service colleagues. In addition, for the coming Financial Year (2022–2023), there is a non-pay allocation of £206K of which approximately 15% is devoted to capacity and networking building and the remainder to investments in successful proposals.

MASI Investments 2021/2022

Our theme for 2021–2022 was the Preciousness of Life: Hope, Change, Renewal; and Refreshment. In the Call for Proposals, we invited applications for BaseCamp, Summit, International Visiting Fellowships, and "Summer of Hope" Events.

- BaseCamp projects carry out research in a sprint-like fashion, over one year, producing clear outputs, building capacity, carrying out feasibility work for external grant applications and/or future Summit Projects. We fund up to £5,000 per BaseCamp.
- Summit projects are Two – year endeavours (Aug 1st 2021 – end July 2023), and seek to "plant a flag" on a highly novel intellectual and impact "summit". That is, they carry out significant research work with important outputs, defining agendas and creating visions that others will seek to follow. The projects are expected to lead to at least one strategic external grant application. We fund a maximum of £15,000 a year per Summit (£30,000 total).
- International Visiting Fellows are expected to commit approximately a month in Swansea and proposals needed to show how they will help build and strengthen transdisciplinary agendas. Fellows are expected to give at least one public MASI Lecture (accessible to a general audience) and interact with Universities across Wales. We expect to fund up to £5,000 per Fellowship (travel and subsistence).
- Summer of Hope Events took place between May and September 2021 and were funded up to £12,000 each to bring an invited group of thought-leaders to Swansea (or online) to forge new agendas for a post-covid era.

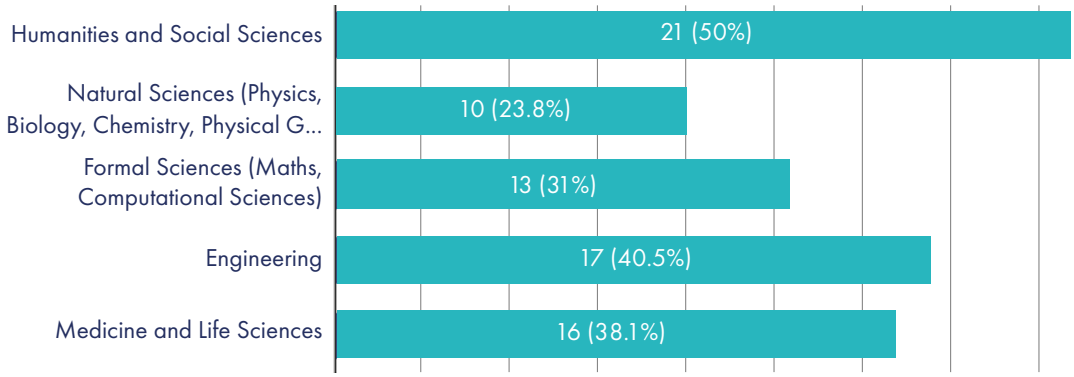
After an open call and a review and panel process based on UKRI best-practice, the following investments were made and announced in Summer 2021:

Table 1: Applications and Investments 2021–2022. Home Faculty of lead proposer is shown but all successful proposals involved at least two Faculties.

Mechanism	Applications	Funded	Funded: Humanities and Social Sciences	Medicine, Health and Life Sciences	Science and Engineering
BaseCamp	6	4	1	1	2
Summit	7	3	0	1	2
International VF	3	1	0	0	1
Summer of Hope	5	3	1	1	1

Applicants were asked to identify which disciplines were represented in their proposal team.
The distribution is shown in Figure 1:

Figure 1: Disciplines represented in the applications. Data includes applications from the 20 MASI Fellows Proposals.



In addition, in early 2022 we ran a further Open Call for Agenda Setting Events focused on creating disruptive, proactive research trajectories for future external opportunities. Four proposals were funded (from a pool of 16). Full details of projects are in Appendix I and online at swansea.ac.uk/masi.

MASI operates an "Active Investor" approach – the team meets monthly with the project leads to encourage and support their work as well as to consider external funding opportunities.

Even though we are yet to complete a full year of investment, funding proposals have already led directly to a range of outcomes including papers and external grant applications, details of these are shown in Table 2, below:

Table 2: Funded work and Outcomes

Investment	Outcome
The Swansea Sorbonne Migration Network—BaseCamp	The first international Swansea/Sorbonne postgraduate and early career researcher two day conference at Swansea University. For more information visit: swansea.ac.uk/geography/research-and-impact/cmpr/swansea-sorbonne- migration-network-conference/
Resilience, challenge and change: Learning from nurses' lived experience of the Covid-19 pandemic in Wales and beyond—Summit	Successful two day creative writing workshop in May 2022. Academic paper in preparation for publication and a pop-up exhibition and online resource planned for 2023.
Quantum Imaging for Neurological Trauma (QUINT)—BaseCamp	Workshops held with speakers from various institutes. A design of an interactive exhibit for children aged 8–15 within the Oriel Science exhibition space at Swansea University has been finalised. PI recognised in national research competitions (awarded First Place in Research Towards a More Sustainable Future and Bronze in Chemistry at National STEM for Britain Awards).
Victimisation and Justice in the Digital Society: A Cyber Clinic Prototype—BaseCamp	Paper and poster presentation entitled "Victim support responses in a digital world: challenges and opportunities", at 17th International Symposium of the World Society of Victimology (WSV) June 2022, in Spain. PI invited to join a Hate Crime Advisory Group convened by Victim Support in Wales. Future grants have been identified and will be discussed at the final meeting of the project advisory group, i.e. ESRC, EPSRC, Sprite+, Police STAR funding.
A pilot study to explore how women in prison remained connected to family and significant others during the Covid-19 pandemic—BaseCamp	The project received endorsement from the Directorate Lead Psychology for Wales and Assistant Chief Probation Officer for Wales. Additional outcomes will include: a stakeholder report for HMPPS, article for peer review and presentation of findings to relevant stakeholder meetings.
Hip Hop for Health—Agenda Setting Event	Application to identified funder(s)—Wellcome, Avast Foundation. Publish in a high impact journal the outcomes achieved from the event. To exhibit progress at Digital Innovation in Mental Health conference themed on "Express Yourself"

Investment	Outcome
Network to Net Zero—Agenda Setting Event	Follow-up meeting scheduled with EPSRC/UKRI India. Targeting Ayrton Fund, calls reportedly imminent. Team plan to travel to India in the autumn to continue relationship building and present plans to Department of Science and Technology (EPSRC equivalent in India)
Preciousness of Life: Making Sports Fit for the Twenty-First Century—Agenda Setting Event	A report is being prepared by the project team. Possible application to the Wellcome Foundation for a grant.
Unconventional and Natural Computing—Agenda Setting Event	Workshop held. Report published. Successful application for a joint FSE fully funded PhD student.
To move forward we need to look back: surfacing the 'legacy' of the colonial and past patriarchal past in modern day STEMM—Summit	A retreat was held in July with the Engineering, Social Justice and Peace Network, and the UK and Ireland Engineering Education Research Network in July. The outputs from this retreat will be an academic article and a press article for E&T reflecting on the challenging conversations. Possible application to Royal Academy of Engineering funding. ESRC/FAPESP.

Capacity Building

A core part of MASI's mission is to build capacity across the university for agile, disruptive, transdisciplinary work, a style and approach that resonates with UKRI and other external funder investment trends. To this end, since launching, the MASI team has organised or been integral to a series of networking, training and proposal shaping events. Four significant examples of this work are:

- Leverhulme Centre for a Post Carbon Future—this proposal championed novel inclusive story-telling to accelerate societal level change. While not funded, the team has continued its collaborations and funding ambitions.
- Welsh Data Nation Accelerator—currently in "start-up" mode, this pan-Wales endeavour has received seed-funding from Welsh Government (£500K) and an Alan Turing Network Grant. Working with colleagues across the university, MASI has helped shape a programme of demonstrator projects and the Case for Support for significant potential future funding.
- Equitable Digital Society Network+ – this £3M (FEC) UKRI investment is a collaboration including Swansea. The funding will facilitate transdisciplinary research for Swansea across diverse set of partners.
- Strategic Partnership with Grenoble – MASI actively supports and helps to shape research and innovation programmes with colleagues in University of Georgia. This year has seen further progress with regards to a "resilience" thematic and the Joint AI Centre.

Learnings

In establishing the Advanced Studies Institute, speaking to a wide range of stakeholders within Swansea University, the region, Wales and wider, there is clearly both an appetite and appreciation for the ways such an Institute can complement other discovery and innovation endeavours. In communicating the Vision and Mission and indeed in designing the programmes and mechanisms, we have had many helpful discussions on how to differentiate the work of MASI from, for example, the established interdisciplinary work within Swansea. We have sought to refine our Calls, for instance, to ensure that the work invested in does involve co-leadership across disciplines and supports emerging teams and ideas.

There is a danger that MASI might be seen as simply another funder. As we develop, we will need to emphasise the capacity building, intellectual agenda, and community nurturing roles MASI plays. Discussions across our stakeholders this year point the way: regular (in person) gatherings where the university community can see and engage with MASI's work; more intense interactions with the faculties including the involvement of MASI Fellows; and additional networking and training activities to encourage and prepare colleagues for effective collaborations.

The Coming Year

Over the coming year, we will be focused on platforming returns on the 2021–2022 investment through external grant applications. We will also extend our capacity building work through a programme of training and mentoring aimed at expanding the network of colleagues who are actively engaged in transdisciplinary work.

In addition, we will make additional investments through the 2022–2023 Call, a Call carefully co-created with the university faculties to support the wider portfolio of interdisciplinary work across our community.

MASI Fellows

Chris Marshall
Head of Policy & Strategy
PSPU

Dr Ian Mabbett
Chemistry
Faculty of Science & Engineering

Thomas Reitmaier
Research Officer
Faculty of Science & Engineering

Dr Lella Nouri
Criminology
Faculty of Health & Life Sciences

Dr Kimberley Dienes
Psychology
Faculty of Medicine,
Health & Life Sciences

Kelly James
RDO
Faculty of Medicine,
Health & Life Sciences

Dr Krijn Peters
Social Sciences
Faculty of Humanities &
Social Sciences

Karl Hawkins
NanoHealth
Faculty of Medicine,
Health & Life Sciences

Appendix I –
Funded Investments
2021–2022

BaseCamp Projects

Swansea-Sorbonne Postgraduate Migration Network

Lead Proposer: Mila Sanchez (PhD Student, Swansea University, FSE)

Co-Proposer/s: Stephanie Barille (PhD Student, Swansea University, FSE)

Project Aim: Swansea-Sorbonne Postgraduate Migration Network is a transnational and interdisciplinary initiative designed for postgraduate students and early career researchers (ECRs) aiming to (1) facilitate discussion and knowledge exchange between researchers working on migration and (2) set up a research network to seek strategic funding and collaborative support for international migration research. The initiative builds on the existing joint work between Swansea University and Université Paris 1 Panthéon-Sorbonne (joint PhD) to maximise collaboration between the established migration centres: Centre for Migration Policy Research (CMPR, Wales) and the Cluster of Excellence in Territorial and Spatial Dynamics (LabEx DynamiTe, France).

The Swansea-Sorbonne network contributes to the development of Migration Research Wales, a new research network on migration within the Wales Institute of Social & Economic Research, Data & Methods, supported by the Welsh Government.

This initiative will develop research capacity, starting with the monthly Migration Reading Group and followed by a conference and a workshop on innovative migration methodologies for PhD students and ECRs. Academic reading groups are not well-established in France and the network will offer PhD students and ECRs stimulating and inclusive opportunities to learn from and compare research strategies employed in the leading centres of migration research. A series of online sessions will be held to critically engage with the key migration issues affecting our world.

This will be followed by a two-day postgraduate conference and knowledge exchange workshop, 'Migration: Issues, Solutions and Policies', to share experiences and prepare a publication of an edited Special Issue. The network will facilitate joint funding applications (Agence Nationale de Recherche and in the framework of the European Collaborative Research Projects) to support further development of methods, approaches and migration-focused research seminars.

Open Conference 24th & 25th May 2022— Swansea–Sorbonne Migration Network: Postgraduate and Early Career Researcher Conference-Migration, Mobilities and Emerging Political Spaces

Victimisation and Justice in the Digital Society: A Cyber Clinic Prototype

Lead Proposer: Dr Sara Correia (Lecturer in Cyber Threats, School of Law, Swansea University)

Co-Proposer/s: Dr Leigh Clark (Lecturer in Human Computer Interaction, Computer Science, Swansea University), Dr Martin Porcheron (Lecturer in Computer Science, Swansea University), Dr Nnenna Ifeanyi-Ajufo (Senior Lecturer of Law and Technology, School of Law, Swansea University), Mr Stuart Nicholson (Lecturer in Human Computer Interaction, Computer Science, Swansea Universty)

Project Aim: Digital technology is embedded into daily life and cannot be meaningfully separated from 'real' world experiences, including those of crime victims (Powell et al. 2018). ONS (2020) estimates that volumes of fraud and computer misuse (e.g. hacking) approximate all other crime combined. These crimes lead to financial losses and impacts on health and wellbeing (Button & Cross 2017). Additionally, tech now plays a role in gender-based violence (Harris & Vitis 2020) and hate crime (Perry & Olsson 2009, Williams et al. 2020). As such, crimes are increasingly 'hybrid', both on and offline.

However, the victim response to online harms has been shown to be inconsistent, particularly with respect to identifying vulnerable victims (Skidmore et al. 2020) and addressing repeat victimisation (Correia 2020). In parallel, victim support services vary widely across geographical areas and the extent to which they are equipped to respond to the role of digital tech is ill understood.

We will create innovative solutions to these challenges, through co-design and a radically interdisciplinary approach. We aim to (1) explore the extent to which victim services are adequate in a 'Digital Society', and (2) develop a 'Cyber Clinic' prototype, offering a blend of face-to-face and digital support, to both increase and research individuals' resilience to victimisation.

By funding this project, MASI will contribute to critical understandings of the landscape of crime and harms in a digital world, and, with it, help redefine notions of justice. Drawing on previous work and restorative justice principles (Braithwaite 2004; Karagiannopoulos et al. 2019, Zehr 2015), we will ask what online harms are suffered, by whom, how to repair them and who has the obligation/ability to do so.

Quantum Imaging for Neurological Trauma (QUINT)– Non-invasive magnetic imaging for the diagnosis of current and historical brain trauma, enabled by novel molecular quantum sensors

Lead Proposer: John Hudson (PhD Student, Chemistry, Faculty of Science and Engineering)

Co Proposer/s: Freja Petrie (PhD Student, Sport Science, Faculty of Science and Engineering), Karol Szuba-Jablonski (PhD Student, Physics, Faculty of Science and Engineering), Eleanor Bryant (PhD Student, Psychology, Human and Health Sciences), Benjamin Cooze (PhD Student, Medical School), Anthony Brennan (PhD Student, Chemistry, Faculty of Science and Engineering)

Project Aim: In 2014, World Rugby introduced head impact protocols in response to a rising number of player concussions. However, neurological damage from collisions may be asymptomatic, leaving players with subtle deficits in brain function. In the short term, this can affect skills such as balance, increasing the risk of additional injury. In the long term, this may lead to acquired neurodegeneration, greatly reducing athletes' mental, physical and social health and thus their quality of life.

Whilst MRI technology can detect markers of severe brain trauma such as bleeding, it is unable to resolve subtle variations in brain physiology resulting from concussive injury and is limited in pitchside applications due to its cost and size. This delays rapid diagnosis and treatment, creating an urgent need to develop objective, pitch-side diagnostic tools to protect players from further harm.

QUINT will leverage research from the ReD Group into the control of magnetic states in radical molecules, applying it to produce quantum sensors for pitchside biomedical imaging – a topic far outside of the expertise of the group or department. QUINT will foster a network of postgraduate researchers with an interdisciplinary knowledge base to realise quantum imaging via an application focused and human-centered design process.

The subtle differences in the magnetic properties of various brain tissues will be detected with quantum sensors, capable of measuring femtotesla variations in magnetic field. These magnetic variations will allow for imaging with greater precision and lower cost than MRI, providing an objective tool for game removal decisions and further treatment in both symptomatic and asymptomatic brain injury. The greater capability of quantum imaging will have multiple applications outside of sport, from the earlier detection of neurodegenerative diseases such as multiple sclerosis, to diagnosing the subtle physiological changes resulting from historical brain trauma.

A pilot study to explore how women in prison remained connected to family and significant others during the COVID-19 pandemic

Lead Proposer: Dr Laura Broome (Research Officer, Psychology, Swansea University)

Co Proposer/s: Dr Iduna Shah–Beckley (NEXUS Personaltiy Disorder Treatment Services, HMP Eastwood Park)

Project Aim: Engagement with MASI is an opportunity for responsive and applied research to consider how women in prison, who already face significant challenges in maintaining a full, connected and joyful life, can remain connected to family/ significant others.

Family ties and connectedness through visits, phone calls and letters are associated with reduced reoffending, improved wellbeing and reduced intergenerational criminal behaviours. However, the lockdown restrictions and physical distancing practices necessary to slow the spread of Covid–19, have led to further difficulties maintaining social connections. For example, at the height of the pandemic prisoners were on lockdown for up to 23 hours a day and face-to-face visitation was replaced with video–conferencing approaches. There is a need to understand the potential impacts, consequences and benefits of this on both prisoners and their family/significant others.

This is not only relevant in the context of Covid–19, but also in terms of supporting prisoners to remain connected in the long–term.

Custodial sentences are often served out of area i.e., Welsh women are sent to England at all levels of custody including prison and their transition back into the community. There are no female prisons or Approved Premises in Wales, significantly impacting their ability to remain connected to family/significant others. The cost and time of travel for visits out of area is a substantial barrier to remaining connected, which is the most predominant criminogenic need for women. The proposed pilot will consider what we can learn from the lockdown response to prepare for future outbreak waves, facilitate recovery, promote resilience and foster connections.

The joint MoJ and Welsh Government Female Offending Blueprint sets out an ambition to accelerate the transformation of services for women in Wales. Engagement with MASI can contribute to this transformation both locally and nationally.

Summit Projects

To move forward we need to look back: surfacing the 'legacy' of the colonial and past patriarchal past in modern day STEMM

Lead Proposer: Dr Patricia Xavier (FSE)

Co Proposer/s: Nathalie Al Kakoun (Engineering), Fred Boy (Business), Ana Da Silva (Medicine), Alys Einon Waller (Midwifery), Catherine Groves (Business)

Project aim: Though Wales is a small nation, it was at the centre of the successive industrial and computational revolutions that have shaped society. Could MASI now position itself to be at the centre of a revolution in critical consciousness in STEMM, leading to more equitable and inclusive practice?

MASI explicitly seeks out ways to make the world more sustainable. Through interdisciplinary data collection and co–creation activities, our proposal aims to surface the legacy of the colonial and patriarchal past within modern STEMM education. Our proposal combines insights from Midwifery, Business, Engineering and Medicine, sectors with different cultures and drivers, but shared unjust legacies.

STEMM curricula have been shaped by the needs of society, but those needs have been interpreted by those in positions of power in ways that optimize their economic outcomes at the cost of both society and the environment. These have predominantly been people who are Western, male, traditionally educated and wealthy. We see this in e.g. the damage done by the continued over–medicalisation of women in childbirth, and the lack of ability that engineers have to engage meaningfully in understanding the social consequences of their decisions (Grenfell, BMW emissions, and, the sector's failure to move on from a business model that has driven climate crisis). We argue that the structures that have been put in place by generations of thought leaders are now inadequate as a foundation for the needs of modern, inclusive society. No amount of patching (e.g. bolt-on ethics courses) will make them fit-for-purpose.

We propose taking the time to look critically at the evolution of STEMM fields through collaborative research and co-production, and looking for evidence of how legacies within our education system are impacting on modern values. Longer-term, this awareness of where our traditions and habits come from should enable us to identify a more just and fit-for-purpose-for-everyone structure.

Resilience, challenge and change: Learning from nurses' lived experience of the COVID-19 pandemic in Wales and beyond

Lead Proposer: Dr Ian Beech, College of Human and Health Sciences, Swansea University

Co Proposer/s: Professor David Turner, College of Arts and Humanities, Swansea University, Dr Michael Bresalier, College of Arts and Humanities, Swansea University, Dr Sarah Crook, College of Arts and Humanities, Swansea University, Dr Laura Kalas, College of Arts and Humanities, Swansea University, Hywel Thomas, College of Human and Health Sciences, Swansea University, Trudi Petersen, College of Human and Health Sciences, Swansea University, Stephen Mckenna-Lawson, College of Human and Health Sciences, Swansea University

Project aim: This project will disrupt the recent 'hero narrative' of nurses' work, uncovering their authentic experience through first-hand testimonies. The project will establish a new interprofessional nexus between individuals in clinical practice, nursing research/education and historical and literary research/education, disrupting the separation of art and science; this could create a precedent for future ambitious and adventurous work.

The collaboration will contextualise and memorialise contemporary nursing in a pandemic, first, with the aid of accounts of past caregiving in previous pandemics, and second, with the accumulation of current lived experiences expressed as creative writing that disrupt the monolithic narrative of nursing as the romanticised legacy of Florence Nightingale.

To provide the project with significant prestige, high profile figures from the literary and nursing worlds will be invited to contribute (e.g. the poet Owen Sheers; the Chief Nursing Officer for Wales Sue Tranka etc). This is an innovative approach for a post-pandemic world where we will explore how we can learn from nurses' experiences of Covid to foster a more connected, secure future. Understanding the current, lived experience through the lens of history, and facilitating a creative space for the production of nurses' Creative Writing, will have an empowering, evocative and lasting impact.

MASI – Mumbai Lablet

Lead Proposer: Dr Thomas Reitmaier (FSE)

Co Proposer/s: Dr Awawing Anjwengwo Andongma (Medicine, Swansea University), Dr Erin P Dooley (Department of Electrical & Electronic Engineering, University of Bristol)

Project aim: The physicist Niels Bohr famously remarked that the opposite of a great truth is another truth. The great truth of the coronavirus pandemic is that it has affected all of us. But the opposite of this great truth is tragically also true: the pandemic is not an equalizer, for marginalized communities have not only been affected differently, but disproportionately. On a smaller scale this great truth plays out within our university, where to some extent we've been able to shift many teaching and research activities online using platforms like Zoom, Google Docs, and Office 365.

However, the outreach and transformative research activities involving fieldwork in and co-creation with marginalized communities have been affected disproportionately.

Listening, engaging, and involving marginalized communities more than ever before is paramount. And with this research expedition our ambition then is to tackle this great truth by innovating ways of cocreating with marginalized communities in a world that has been profoundly shaped by the ongoing coronavirus pandemic.

We will do this by establishing a MASI lablet situated in Mumbai, India and run by Dani Raju at Studio Hasi. Following MASI's mantra that people are the most disruptive technology of all, we are delighted that with Dani we have identified a proven and eager collaborator. Dani's has a rare combination of codesign, prototyping, and media production skills, which can be seen in the following video and is a sneak peak of the diverse and far reaching contributions that will come from this expedition. Finally, Dani has strong links with community members in Dharavi – Asia's largest slum, situated in the heart of Mumbai, India and smaller, rural communities surrounding Mumbai.

MASI Agenda Setting Events

Making Sports Fit for the Twenty-First Century (11th & 12th July 2022)

Lead Proposer: Dr Andy Harvey, Sport & Exercise Science

Co Proposer/s: Dr Shane Heffernan, Senior Lecturer in Sport and Exercise Science

Project aim: The issues of Differences in Sexual Development (DSD) and transgender athletes are causing significant difficulties for sports authorities and that there is a confusion of policy responses that fail to adequately meet the needs of athletes, whether cisgender, DSD or transgender.

The problem is genuinely transdisciplinary, needing researchers from human rights law, sports ethics, sociology and history, as well as from physiology and biology to have any chance of coherent solutions to be found.

The applicants of this bid are currently running a research project entitled 'DSD and Transgender Elite Sports Study' (DATES). The project has recruited two MSc by Research students from Swansea University who are surveying and interviewing elite athletes competing in the female category to obtain the perspectives of the athletes in respect of participation by DSD and transgender athletes in elite sport.

So far, over 150 responses have been received making the study one of the largest of its kind in this emerging field. The project is interdisciplinary and aims to understand the issues from multiple disciplinary perspectives. The applicants bring expertise from natural science (Dr Heffernan) and social science/ gender studies (Dr Harvey). The project is supported, in kind, by Sport Wales, the Welsh Institute for Performance Science and several international sporting organisations.

The event proposed in this bid will build on the research initiated by Dr Heffernan, Dr Harvey and the DATES team by bringing together experts and policymakers to interrogate the issues involved, to develop a research agenda and explore research funding potentials that can promote the preciousness of life through engagement with sport that meets the needs of all participants. Access to and participation in sport has well-known physical and mental health benefits. Ensuring that sport is fit for purpose for the twenty-first century is the ambition for this project. The organisation of sport will need to change to meet the needs of all participants. This project will arm sports policy-makers with the transdisciplinary tools to make those changes based on the best possible evidence.

Hip Hop for Health (24–25th June 2022)

Lead Proposer: Prof Ann John, Public Health & Psychiatry

Co Proposer/s: Prof Desmond Patton, Columbia University, USA, Dr Becky Inkster, KOMBAT, UK, Tunde Olatunji, KOMBAT, UK

Project aim: What: bring together local/national/international thinkers to discuss: "how can we use human-driven technologies and hip hop to revolutionize wellbeing?"

Who: Participants from healthcare, computer science, planning, regeneration, education, youth services, arts, and young people.

Where: Arts ARKADE, Swansea.

Let's reimagine what is possible. Hip-hop has already changed the worlds of business and culture. What else could it transform?

An Indo-UK Collaboration in Decarbonisation for Equitable Net Zero Outcomes (13th–15th July 2022)

Lead Proposer: Dr Adrian Walters, Materials Science & Engineering

Co Proposer/s: Dr Carol Maddock, Swansea University, Dr Ian Mabbett, Swansea University, Prof Hari Upadhyaya, London South Bank University, Prof Louise Manning, Royal Agricultural University, Prof Howard Griffiths, University of Cambridge, Dr Minna Sunikka-Blank, University of Cambridge, Prof Tony Byrne, Ulster University

Prof Ashish Garg, IIT Kanpur, Prof Satish Patil, IISc Bangalore, Prof T Pradeep, IIT Madras, Prof Anil Tripathi, Banares Hindu University, Dr Gandharva Pednekar, Tata Institute of Social Sciences, Mr Arunavo Mukerjee, Tata Cleantech Capital Ltd.

Project aim: N2NZ intends to target the COP26 goals of 'mitigation' including helping to accelerate the transition from fossil fuels to clean power, and to protect and restore nature for the benefit of people and climate. We aim to support those involved with goals around adaptation, specifically in building resilient infrastructures and agriculture, whilst accessing the third goal of green finance. Our ethos is fully aligned to the final goal of 'collaboration', placing the UK and India at the forefront of this global grand challenge.

To progress the nucleation and growth of the network, a series of three virtual scoping summits were held between Nov 21 to Mar 22 with the objective of bringing leading actors from the water, energy, and food vectors together to discuss the interconnected challenges and gather information.

This information now needs to be synthesised by a core group to develop a coherent and scalable structure and programme agenda, encompassing both the collaboration building activities of the network and high-level R&I themes, work-packages, milestones, and deliverables—the MASI Agenda Setting call presents a timely and appropriate opportunity to bring the key actors together to collectively review and build a full project proposal over a focused three-day event. In-person attendance at Swansea University will be promoted and supported as far as is reasonably possibly, but a hybrid option will be available for those whom attending in person is difficult.

Unconventional Computation: Taking inspiration from natural systems for beyond next-generation technology (7th & 8th July 2022)

Lead Proposer: Dr Richard Cobley, Electronic Engineering

Co Proposer/s: Dr Noemi Picco (Mathematics), Dr Edwin Beggs (Mathematics), Prof Elaine Crooks (Mathematics), Prof John Tucker (Computer Science), Prof Richard Palmer (Mechanical Engineering)

Project aim: We have identified four questions which we will address during the Event on Unconventional Computation. A white paper will then be produced addressing the four questions.

Question 1: What expertise and physical infrastructure exists in Swansea to support UC research? Where are the synergies in our strengths? What are the main 2–3 themes within UC that Swansea could lead on, and should concentrate on for research and bid development?

Question 2: What is our preparedness to build the interdisciplinary teams necessary to apply for large grants? Which teams have natural overlap?

What can we do as a community to support being ready to apply for interdisciplinary calls? Should we begin the groundwork for an IRI? Who are the external partners we need, to realise our ambitions, and who can we support?

Question 3: What is the current diversity picture within relevant university subjects, and related industries? Can we use these to establish strategies to increase diversity? Can we work towards a DTC to support a future diverse community of researchers, which reflects the need to change, renew and refresh?

Question 4: What is the future of UC in Wales? How do we work with CISM and the compound semiconductor investment to ensure that they are set to build the 'after-next' technologies that come out of UC research? How do we work with the WG and policy makers to ensure Wales is set to benefit from UC research?