

2020 Annual Report



EPSRC Centre for Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems (EPIC)

Introduction

The EPSRC Centre for Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems (EPIC hereafter by replacing “people” for “human”) was founded in early 2019. Work began at pace to recruit the Centre’s staff and the first cohort. That cohort of 12 researchers are now in the final phase of their first year, completing their Masters level qualification with a 3 month project that will help set the scene for their main PhD research activity in the subsequent three years. As the first cohort moves into this new phase, we are in the process of finalising the second (of 5) intakes to the Centre.

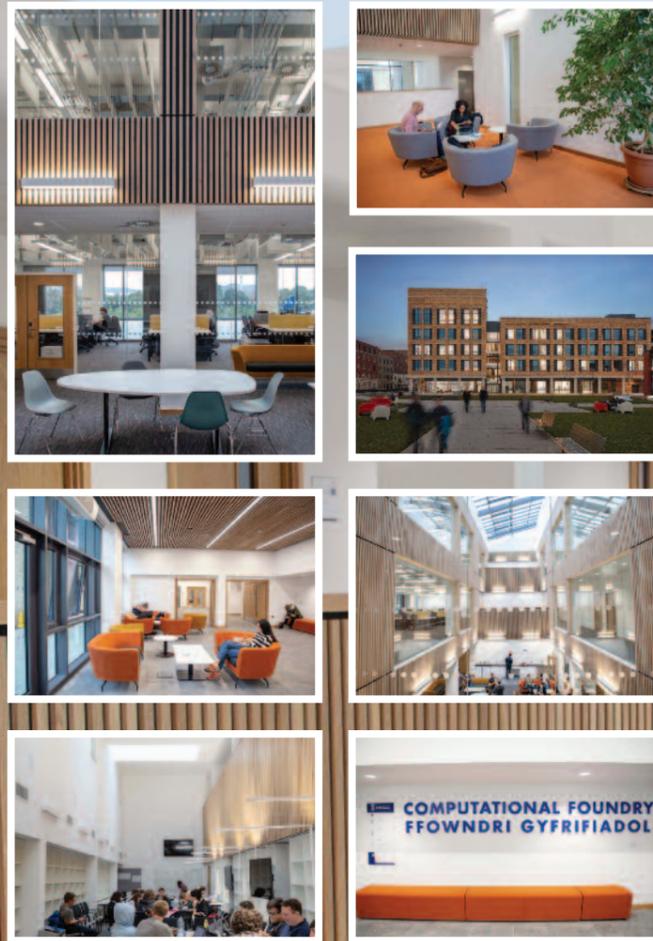
The EPIC Centre is the first Doctoral Training Centre in computational sciences hosted at Swansea University and the founding year has had the backdrop, over the last 6 months, of the COVID-19 pandemic. We as a team have had to learn and adapt flexibly as the Centre establishes itself.

In this report, we improve and reflect on the activities carried out by the Centre over the first year. In summary, we feel the period has been a fruitful one: a good first intake of students who have grown into a supportive, vibrant cohort; meaningful and enthusiastic engagements from the stakeholders who supported the original proposal and additional ones that have helped in research meetings and project development; work to establish a visible responsible innovation culture and to consider equality, diversity and inclusivity issues; and, cross-discipline, pan University involvement in the work of the Centre through the academics connected to it and the communities who have been exposed to its work.

However, there is still a great deal more to do: in particular, we note the challenges of reaching out to a more diverse and inclusive constituency of potential cohort members. To date, the majority of applicants have been from computer science, mathematics or engineering backgrounds; and have been predominantly men. A further challenge we will address in the year ahead is the process of co-creating PhD project topics. Our Centre uses the distinct approach of multiple engagements during a cohort’s first year with potential external partners in sandpits and other events to form project topics collaboratively with the students and academic supervisors. This being the first year of operation, the limited time available to us to develop active relationships with stakeholders who could commit to co-funding projects for Cohort 1 meant that we were able to offer a choice of 12 projects to the 12 students. The students inevitably felt a degree of apprehension over the perceived competition for projects but this was resolved through a careful allocation process. In subsequent intakes, we anticipate there being both a larger number of projects and we will adapt the co-creation process to address this issue.

As we move into the second intake, we are looking forward to the additional activities that Cohort 1 will participate in (such as internships and visits to other research groups globally subject to the COVID-19 situation, of course); and, the cross-cohort working as Cohort 1 and 2 learn from each other.

Matt Jones
Director, EPIC



Establishing the Centre

Creating a Space to House the Centre

The EPIC Centre is based on the Bay Campus in the Computational Foundry building. This £32.5million world class facility, opened in October 2018, offers bespoke laboratories for each specialism of computational research (maker lab, theory lab, security lab, user experience lab, biometrics and vision lab, visualisation lab, IoT lab), and quality teaching and training spaces.

The EPIC Centre has a dedicated (271m²) of space for the Cohort, including a formal meeting space (36m²), collaboration and interaction spaces, as well as an allocated desk and storage space for each member of the Cohort. The dedicated space was used continuously by our Cohort prior to COVID-19.

From a physical perspective, the space has proved an enormous success in building and strengthening our people-first movement, not only because the Cohort is located together, but because the space facilitates impromptu conversations, which has already generated innovative research ideas and solutions. The space also provides a unique training experience for our Cohort.

The Team

Matt Jones (PI) is the EPIC Centre Director, devoting 25% of his time to leading all aspects of the Centre. Co-I Markus Roggenbach (Deputy Director) has devoted 15% of his time to the EPIC Centre. In addition to leading the theoretical computer science elements of the Centre and deputising for the Director as needed, Markus has worked to assure the integration of the EPIC Centre with the University PGR and Learning and Teaching policies and processes.

Sherryl Bellfield is the EPIC Centre Manager and is based within the Centre at the Computational Foundry. Sherryl is responsible for strategic oversight; risk management; governance at the Centre; reporting to

UKRI/EPSRC; financial management; cohort planning; contact into the PGR Office and University PGR Infrastructure, and communications architecture.

Sherryl is supported closely by the Centre Administrator, Oliver Williams, who is also based in the EPIC Centre at the Computational Foundry. Oliver is responsible for the preparation and execution of recruitment and admission to the EPIC Centre; logistical support for cohort building activities; collating of data for reporting; the initial point of contact for students and their pastoral care; minute taking; invoicing; preparing communications (including Welsh translation); social media; scheduling of training scheme and collation of training records; and, ensuring GDPR compliance.

Tashi Gyalsten is the EPIC Centre's Stakeholder Engagement Officer. Tashi's role at the EPIC Centre is to strengthen and manage the Centre's external collaborations with industry, building partnerships to drive research development and impact. Tashi understands and markets the capabilities of the Centre to the private and public sectors, and acts as an ambassador, enhancing the Centre's reputation, regionally, nationally and internationally

All other Co-Is have dedicated 5% of their time to the EPIC Centre, and have provided extensive experience to support its delivery. Since the inception of the EPIC Centre, the Co-Is have provided the following: ensured that key scientific agendas emerging in their respective fields are reflected in the Centre; assisted the Director in leading the Sandpits; assisted in the recruitment of Cohort 1 and Cohort 2; and been active advocates for the Centre and liaison points of contact for relevant stakeholders and partners.

In addition to the Co-Is identified in the Proposal, three other colleagues have committed valuable time to the Centre's activities: Simon Robinson and Jen Pearson are the co-Directors of the MSc first year

programme; and Matt Roach has worked closely with the Stakeholder Engagement Officer as the Strategic Stakeholder Lead. All

of these colleagues have allocated at least 5% of their time to the Centre.



Dr Jennifer Pearson – co-Director of the MSc first year programme



Professor Markus Roggenbach – Centre Deputy Director



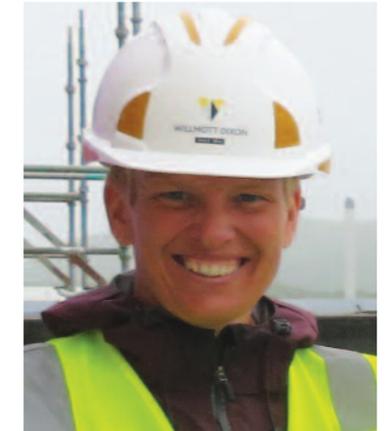
Professor Matt Jones – Centre Director



Dr Simon Robinson – co-Director of the MSc first year programme



Dr Matt Roach – Strategic Stakeholder Lead



Dr Sherryl Bellfield – Centre Manager



Tashi Gyaltsen – Stakeholder Engagement Officer

Governance Structure

Figure 1 shows the Governance Structure of the EPIC Centre, detailing lines of authority and project assurance responsibility.

The Centre Management Team meets on a weekly basis. The Deputy Director, the Centre Manager, the Strategic Stakeholder Lead, the MSc Directors, and the Business Engagement Officer attend this meeting, which is chaired by the Director. This team oversees, organises and runs key Centre processes including: cohort recruitment and student reviews; training mechanisms, and Management and Governance events.

The Centre Leadership Board, which is chaired by the Director, consists of the investigators, the Centre Manager, the Strategic Stakeholder Lead, the MSc Directors and a PhD student representative. The Centre Leadership Board meets on a monthly basis. The agreed Terms of Reference states that the Centre Leadership Board will be active in nurturing and shaping the ongoing life and activities of the Centre; decisions of this Board will be operationalised by the Centre Management Team; and the Board will respond and report back to: Community Accountability in the Research Environment (CARE) panels, the Stakeholder Steering Committee, the International Calibration Committee, the University Oversight and Integration Committee and the Responsible Innovation Team.

The Steering Committee oversees the delivery of the EPIC Centre from an institutional risk and assurance perspective, and has the authority to make decisions affecting delivery and resourcing. The Steering Committee consists of representatives from the Major Projects team, the Finance team, the Director of the Computational Foundry, the Centre Manager, and is chaired by the Director.

Swansea University has several other Doctoral Training Centres, which are coordinated and overseen to maximise opportunities and value for money by the Doctoral Training Strategy Sand Governance Oversight Group. This

Group, which is chaired by the Dean of Post-graduate Research and attended by the Directors and Managers of each Centre, is responsible for informing strategy and governance to all aspects of Swansea University held doctoral training programmes, including internally and externally funded scholarships programmes, centres for doctoral training, doctoral training partnerships and algorithmically allocated cohort scholarships. The Group meets on a quarterly basis.

The Stakeholder Steering Committee meets twice per year and its purpose is to ensure the Centre, including our students and our academics, are meeting the expectations of our partner organisations; advising on the process and procedure from project initiation to completion; and advising on the type of students to recruit to the Cohort. The Committee is chaired by the Strategic Stakeholder Lead and is attended by the Centre Manager, the Business Engagement Officer and six external stakeholders.

The Stakeholder Strategic Advisory Team is scheduled to meet for the first time in October 2020 and then twice yearly thereafter. The Advisory Team is chaired by Elin Rhys, scientist, broadcasting entrepreneur and champion for equality in the workplace. It consists of three external stakeholders, a member of the Internet Coast City Deal Board, a PhD student representative elected by the Cohorts, a Pro Vice Chancellor to represent the wider academic community, and a representative from EPSRC. This committee is tasked with: receiving and responding to the Centre's Annual Report; extending the pathways for cohort engagement during and after graduation; and, providing horizon scanning input in terms of regional economic and societal developments and how the Centre might best respond to these.

The International Calibration Committee meets virtually once per year (commencing in

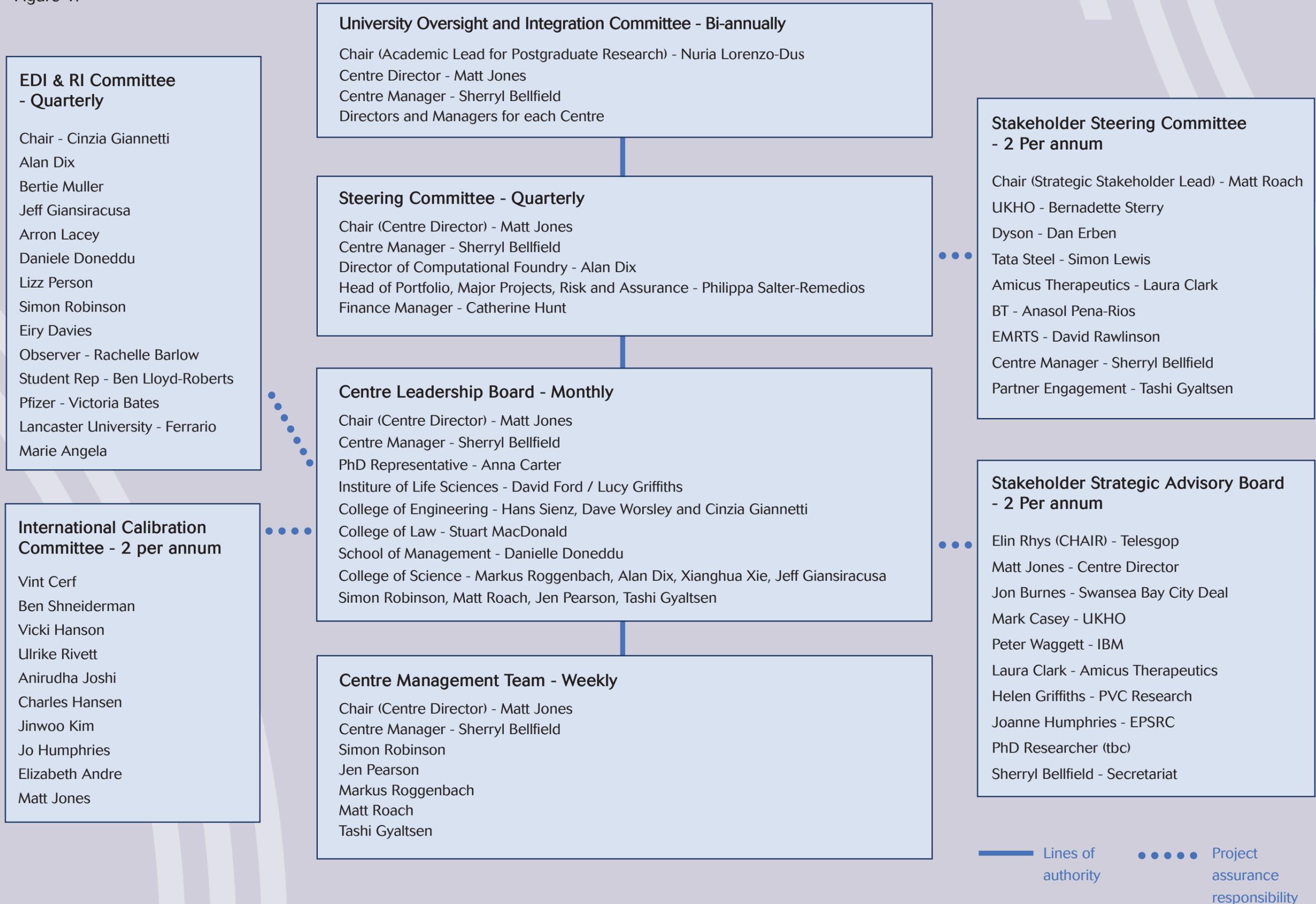
November 2020). The Committee is chaired by Ben Shneiderman, who is globally recognised for his advocacy, mentoring and insights into methods and approaches for breakthrough collaborations, and his thought leadership on the social and ethical impacts of computation. Members are academics experienced in innovative training and who are setting the global computational science agendas. Founding members are: Vint Cerf (Vice President and Chief Internet Evangelist, Google), Moshe Vardi (Professor of Computer Science, Rice University, USA, formerly Editor-in-Chief of CACM, focused on automated reasoning), Vicki Hanson (formerly ACM President and now CEO of ACM, the global research and professional organisation for Computer Science, focused on inclusive technology); Ulrike Rivett (Professor, Civil Engineering, University of Cape Town; ICT for challenging Civil Engineering Projects); Chuck Hanson (Professor of CS, University of Utah, focused on large scale visualisation); Anirudha Joshi (Professor, Interaction Design Centre, IIT Bombay, human and machine learning approaches for emerging markets); Jinwoo Kim (Professor Yonsei University, Seoul, co-creation of pro-social behaviour); and, Elizabeth Andre (Professor Augsburg University, Social Robotics). The committee will: review emerging research themes and results; reflect on the Centre's training methods and outcomes, and develop links for cohort and supervisory exchanges.

The Equality, Diversity & Inclusion and Responsible Innovation Committee is chaired by Cinzia Giannetti (Co-I), and includes pan-University ethics and responsible innovation representatives, as well as two external stakeholders and one of the Centre's students. The Committee oversees and helps evolve the Centre's mechanisms for Responsible Innovation and ensure the wider University's ethical and Equality, Diversity & Inclusion policies and practices are fully

accommodated. The team is mandated to review the Centre's engagement plans requiring changes. All of the research work of cohorts (from side projects to research studies) will be governed by University approval processes.

On Day 2 of the event, each applicant took part in a 30 minute interview. Due to the volume of applicants, we convened 4 panels, each with stakeholder and academic interviewers. The Director moved between panels to consider consistency of approach and at the end of the day, he met with the panel chairs to discuss their ranking of candidates, assuring the final combined ranked list reflected a fair, calibrated ordering across all panels. This process was modelled on that used in multi-panel assessments carried out by EPSRC. In all, 12 offers were made (25.0% Female, 75% Male). Of these offers, 2 were declined so their places were offered to 2 of the reserve candidates, leading to a first intake of 12 students in September 2019 (16.7% Female, 83.3% Male).

Figure 1.



Recruiting the First Cohort

We carried out a series of actions to encourage applications. As well as local information events across our campuses, addressing potential applicants from a diverse range of disciplines, we also sent promotional material to a large number of Computer Science departments across the UK and placed a prominent advertisement in the New Scientist magazine.

By the closing date in March 2019, we received 37 applications (13.5% Female, 86.5% Male). Members of the Centre's team shortlisted 24 candidates (16.7% Female, 83.3% Male) from these using clear criteria published on our application website. As well as academic qualifications and expertise, we were looking for evidence that the applicants would embrace the ethos of our work and benefit from a cohort-based training approach.

In April, we invited the shortlisted candidates to a 2-day event. On the first day, Centre team members, stakeholders, current PhD students and other academic faculty met with the applicants and participated in a number of activities to help the candidates get a better understanding of the Centre. These activities included a poster session where candidates presented a relevant piece of project work; and, a group exercise where candidates worked together on an ethical AI issue and reported back in a plenary session. The day ended with a networking meal. Applicants were assured that the first day was not assessed so that they were able to use the time in a more relaxed way to prepare for their interview on the second day.

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Cohort Building, Training and Support Activities

Induction Activities

As part of the induction to the programme, we took our cohort to a residential retreat for a 2-day inaugural event. This trip, attended by the key academics involved in the CDT and 10 of the 12 Year 1 students, was an opportunity for everyone to meet and get to know one another, but also to learn about the ethos of the Centre and how we plan to build and grow as a cohort. We began with team-building activities including archery, falconry, group-based problem solving tasks and a trivia social. On Day 2 we moved on to more academically-focused activities, including presentations on the vision of the Centre, projects and stakeholders, and plans for the coming semester, then finished with further getting-to-know you activities and reflections on the event.



Report on the Masters Year: Design and Rationale and Reflections

Design and Rationale

The Masters year of the CDT programme was designed to include both intra- and cross-disciplinary content to imbue human-centred thinking in all students regardless of technical focus or background. To this end, we included six core modules:

- Human-centred perspectives and methods: HCI and design components, data structures and architectures; shaping system design with humans in mind.
- Human-centred visual analytics: State-of-the-art devices, interactions and visualisations; applications to big data and intelligence-based systems.
- Abuses, biases and blessings of data: Case studies focusing on ways in which data, statistics and AI have been misused in society.
- Designing-in trust, understanding and negotiation: An exploration of how concepts and methods can provide trustable, verifiable and useful designs and systems.
- Big data and machine learning: A broad introduction to AI, machine learning, pattern recognition and applications to big data problems.
- Critical systems: Techniques for safety critical systems, and tools for critical software development.

These foundational modules were designed to provide students with exposure to and training in foundational concepts to state-of-the-art interactions, and draw on knowledge from case study material from challenging context areas to ensure training is grounded in an

understanding of real people and use-cases in society.

To allow students to explore challenging context-oriented topics as well as additional technical areas of their own interest, we provided a selection of optional modules from both the Computational Foundry (existing M-level Computer Science / Mathematics modules) and other departments including Engineering, Law and Medicine. Students are required to choose at least one module from outside of the Computational Foundry. While this brings a significant amount of timetabling complexity, we see this as a critical element of the CDT programme, linking directly to the challenging context areas it is concerned with.

A programme of retreats, sandpits and training events complements this structure (detailed elsewhere in this document).

At the end of the Masters year, students also carry out a 3-month project in collaboration with one of the Centre's stakeholders to immerse them in elements of challenging contexts and how these can inform computational science and innovation. At the time of writing, the first CDT cohort are just starting their MSc project.

Reflections

- The Masters programme was approved by the university and externally validated in early July 2019. The first cohort of students arrived in September 2019.
- Academically, overall the first Masters year went very well. All students passed with high grades (72% average).
- We are happy to report that we have a multidisciplinary cohort, with 50% made up

from Computer Science backgrounds and 50% from other disciplines (including Law, Mathematics, Geography and Engineering). We also have a mix of genders, ages and nationalities. This diversity of backgrounds allows the students to help each other understand the issues /challenges in their own areas and aids in them working effectively together. We acknowledge the need though to increase the appeal and uptake of the Centre to further diversify the thinking we nurture.

- ▶ We encountered challenges with timetabling, as predicted, but we took a flexible approach and allowed students to switch and/or attend whichever module they found most related to their work (rather than worrying about having low attendance records).
- ▶ The pre-semester self-study programming course that we arranged for non-Computer Science students did not work as well as hoped. For the second intake, we intend to send details of recommended online courses (e.g., Python) well before the start of term, and also (depending on availability) recruit students from Year 2 to help train the incoming cohort.
- ▶ Our initial group-based cohort mentoring approach did not work well as students felt that the time was not being well used (due to competing demands from taught modules), and that they were unable to get personal support from the sessions. We restructured this for Semester 2 to provide individual meetings, which was far more successful. We intend to begin the second cohort with individual meetings, supplemented by the group-based sessions described below that will also include students from the first cohort.

- ▶ The students are mostly getting to know each other well. Some students are more social than others, but all have made friendship groups within the cohort and most are regularly spending social time together as a large group. We are pleased that this important aspect of the CDT vision has begun to come together.
- ▶ Semester 1 was quite busy and stressful for some students, in particular those who came from a non-Computer Science background. We should be more mindful next time when overseeing module selection to ensure students do not unintentionally overload themselves in the first semester.
- ▶ Some of the more theoretical Computer Science modules (e.g., Critical Systems, which is also currently a compulsory module), despite not having any specific prerequisite courses, involve a certain amount of assumed knowledge which students from a non-science or engineering background struggle with. We are considering removing these from the compulsory modules list to allow people from different disciplines to select ones more suited to their skills/interests.
- ▶ One of the compulsory modules (Designing in Trust, Understanding and Negotiation) led to concerns by students. This was a challenging module, with multiple different lecturers, diverse material and a difficult exam. Integrating the wide range of different teaching and assessment styles did not work as well as we had hoped, and we have tasked the module coordinator with restructuring and designing improvements to the approach in preparation for the upcoming year.

- ▶ In the original proposal for the CDT we intended to include modules from the School of Management, but these were not able to be set up in time for the first cohort. We intend to review the optional modules each year, adding or removing these as needs, topics and challenge areas evolve.
- ▶ The sandpit events we ran were refined over time. We did not involve students in the events as much as we could have at first, but feedback from students led to several improvements here (see below).
- ▶ Project selection/allocation is a complex task, with student, academic and industry stakeholders. As a result, it is not always possible to ensure that all students are assigned to their first choice. We are reviewing the approach taken this year, and will refine for the second round (covered elsewhere in this document).
- ▶ An additional concern arising from the Covid-19 pandemic is the issue of social distancing and how this will affect the 'people-centred' aspect of students' research. In particular, the inability to conduct face-to-face user evaluations or deployments could be detrimental to some projects in the short term. We have talked to students about how they could, for example, focus on literature and development aspects for the Masters element, and move to the intensive human-centred work as this becomes more possible again.

Additional Cohort Activities

Throughout the MSc part of their studies, during term time the cohort received mentoring support in the form of weekly, 1 hour long group meetings with Deputy Centre Director Markus Roggenbach. These meetings

provided students with an opportunity to:

- ▶ Socialise with each other in the group.
- ▶ Spontaneously bring up a topic (unrelated or related to the Centre).
- ▶ Regularly provide feedback on programme delivery and/or programme elements.
- ▶ Discuss topics such as interdisciplinary research, evolution of programming languages, relationship building with stakeholders.
- ▶ Get informed on stakeholder projects.
- ▶ Explore how to write an MSc / PhD dissertation.

The mentoring meetings were organised as a mix of 'free time', where students could choose a topic they found interesting, and impulses set by the mentor, where, e.g., feedback on programme delivery was requested.

Each Co-I was given the opportunity to engage with the cohort in a single, one hour long session. In these meetings, the Co-I related research in their subject area (Co-Is come from different disciplines such as Medicine, Law, Management, Engineering, Mathematics, Computer Science) with the Centre and its vision, i.e., they contributed to the interdisciplinary nature of the Centre. Co-Is took various approaches to these Meet-The-Co-Is Events. Some started off from headlines in newspaper articles that led to a discussion, some read an accessible scientific paper with the cohort, some prepared a lecture. Usually, the material for these meetings was given to the students beforehand, so that students could prepare for the events and come up with their own ideas and questions.

Besides widening the students' scientific

Advertisement used for the Centre in the New Scientist Magazine

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Computational Foundry

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EPSRC
Engineering and Physical Sciences Research Council

EPSRC Centre for Doctoral Training in Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems – Call for Applications for 4-year Funded Research Studentships.

We are looking for people who are committed to changing the world via world-class research that focuses on amplifying human capabilities through the use of data-driven and intelligence enabled systems. The programme spans 4 years and includes an integrated Masters.

Working alongside a rich and diverse set of industrial, public and third sector partners – including Facebook, Tata Steel, Ordnance Survey, Microsoft Research, Gofore, NHS and QinetiQ – successful candidates will use a people-first approach to drive exciting, adventurous and impactful scientific breakthroughs.

This new Centre, funded by the UK's Premier Science and Engineering body, EPSRC, is housed in the recently opened £32.5M state-of-the-art Computational Foundry at Swansea University. Members of our Centre will be nurtured by multidisciplinary supervisors who are globally leading research agendas in Computer Science, Mathematics, Engineering, Management, Medicine and Social Care and Law.

Candidates should have an aptitude and ability in computational thinking and methods (as evidenced by a degree in Computer Science, Mathematics or Engineering, for instance) including the ability to write software. The minimum entry requirement is a 2.1 undergraduate degree. For non-native English language speakers an IELTS average score of 6.5 with no less than 6.0 in any element is required.

For future AI and big data technologies to serve society and the economy effectively, they will need to be created and critiqued by a diverse and wide set of perspectives as possible: we welcome applications from anyone who feels they can help in the mission of the Centre.

This year, we have 11 fully funded places (fees plus maintenance stipend set at the UKRI rate, currently £14,777 per annum for 2018/19 for full-time students, updated each year) for UK/Home and EU nationals who can satisfy UK residency requirements. Places are also available for those in receipt of four-year external funding.

Applications for this first cohort (starting Autumn 2019) should be made via our website (people-first.best) by **March 22nd, 2019**. There will be an information and interview event scheduled for 16th and 17th April 2019.

For an informal discussion about your application, please contact the Centre Director, Professor Matt Jones (Director-Enhance-CDT@swansea.ac.uk).

Canolfan EPSRC ar gyfer Hyfforddiant Doethurol ym maes Ehangu Cysylltiadau Dynol a Chydweithrediadau gyda Data a Deallusrwydd

Rhoi pobl yn ganolog i Systemau AI sy'n cael eu gyrru gan Ddata
Ysgoloriaethau ymchwil 4 blynedd wedi eu hariannu'n llawn
Ymgeisiwch: <http://people-first.best>

Mae nifer o bobl yn pryderu am beth fydd yn digwydd wrth i ni ddi-bynnu'n lwy ar systemau "deallusol"
Ymunwch â'n Canolfan a chynorthwyo i greu'r technolegau newydd hyn mewn modd unigryw, arioesol sy'n ddynol-ganedig. Byddwch yn gweithio ynghyd â'n tîm o safon fyd-eang yn y Ffowndri Gyfrifiadol £32.5M o'r radd flaenaf a phartneriaid allanol gan gynnwys Grŵp Admiral, DST, Ford, Fujitsu, Gofore, McAfee, Tata Steel, Google, GIG a Facebook.

Ymunwch â'n Symudiad sy'n rhoi Pobl yn Gyntaf a Newidiwch y Byd!

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Putting People at the Heart of AI and Data-Driven Systems

We are calling for applications for 4 Year funded research studentships, which includes an Integrated Masters

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horizon and contributing to the interdisciplinary nature of the Centre, these events provided a good opportunity for Co-Is and students to get to know each other as potential supervisors / research students. Original plans, to invite further potential supervisors, e.g., from the Centre's computational core, proved to be not manageable due to time constraints.

In the original set-up, we were planning to organise a weekly interdisciplinary seminar series for the cohort. The idea was that the cohort should visit seminar talks in existing seminar series in the Co-Is' departments. This should strengthen the interdisciplinary nature of the programme, and reduce the barrier for students to engage with departments different from their home department. However, in the end, we abandoned this initiative for two reasons. At the start of term in autumn 2019, it proved to be a challenge to obtain data on the various seminar series in the university: some series were not yet running, Co-Is were too busy with the start of teaching to engage with this new idea. But more importantly, it turned out that the cohort was more than busy enough. The interdisciplinary nature of their studies proved to be a challenge; there were overlapping coursework deadlines that could not be coordinated over different departments; also, additional events such as the sandpits, the meet-the-Co-I events, and events organised by the Computational Foundry were taking their attention and energy. Adding an additional element would have led to information overload. Thus, it was decided not to run this seminar series. For the second cohort, we will reflect on our experience again and see if this element could be re-introduced.

The Swansea Department of Computer Science organises an annual scientific conference for their third year students at the Gregynog Conference Centre. At this conference, third year students present initial research on their final year projects. Further, there are invited talks from industrial speakers, on career advice, and scientific topics. As staff

and students stay together at the Conference Centre for a couple of days, this is an excellent opportunity for relationship building. The CDT decided to partake in this event as a special Gregynog Retreat in three delegations of 4 students each. The event took place in November 2019. It should root the cohort within the Computer science department and also provide the students with some relaxed time together. Furthermore, the event provided an excellent opportunity for the Centre Director, Matt Jones, to have a long, individual chat in a social atmosphere with each CDT student on their experience in the Centre so far as well as their hopes and aspirations.

Besides specially organised activities, our CDT cohort is of course a vital part of the wider research culture. This includes for instance 'research celebration days' that happen every 6 months. On suggestion of the research students, in December 2019 we had a popular panel 'Ask an academic, postgrad question time'.

Other regular events include the 'My Research: Why it Matters' series, in which academics reflect in an entertaining way for about 15mins + question time on what drives them to undertake their research. Also, our CDT cohort contributed to the celebrations of the International Women's Day, where part of our cohort was on a panel.

Pictures from the residential team-building induction event in September 2019



Developing and Allocating Masters & PhD Projects

Stakeholder Engagement and Project Development Timeline

All partners, new and existing, are invited to propose challenges to the Centre in the form of project ideas. These ideas are then further shaped through co-design with students and Academic Mentors during the first Masters year. The projects are finalised and matched with students and stakeholders to go forward into student projects. The figure below summarises the key activities of the stakeholder engagement and project development.



The timings of these activities are summarised in the table below:

Action	Timeline	Purpose
Project Ideas from Stakeholders	July	To shape sandpits
Project Ideas from Academics	July	To shape sandpits
Sandpit (research workshop)	Oct (Y1)	To shape research projects
Sandpit (research workshop)	Dec (Y1)	To shape research projects
Sandpit (research workshop)	Feb (Y1)	To shape research projects
Create Approved Project Brochure	March (Y1)	To match students to projects with stakeholders
Research Project Selection Interviews	April (Y1)	To finalise research project teams
Formal sign-up to student & project	May (Y1)	To form collaborative research agreement
Masters Project Delivery	June - Sept (Y1)	Gain Masters degree and background to PhD work
PhD Project Delivery	Oct - Sept (Y2 - Y4)	Gain PhD

The project development and engagement timeline is supported by a process and a large range of stakeholder engagement and relationship development activities to mature collaborations and project ideas through to PhD project proposals with academic supervisors and stakeholder sponsorship. These are then presented to students who can indicate their pre-preferences for a project.

Stakeholders are at the heart of what we do and we are very grateful for the extensive in-kind support they have provided this year from attending sandpits and interview days to mentoring students. We estimate this in-kind contribution to have the value of £55K.

Project Development Sandpits

Three sandpits were held this year between stakeholders and students. The Sandpits were themed: Digital Transformation in Manufacturing and Beyond (Oct 19); Human Interactions with Intelligent Algorithms in Health & Wellbeing (Dec 19) and Human Interactions with Intelligent Algorithms in the Digital Economy (Feb 20). Each sandpit saw a healthy mix of external stakeholders, academics and our Cohort.

Pictures from the Sandpits



Allocation of Students to Projects

For each project that had an academic supervisory team and a sponsoring stakeholder allocated to it a project brief was created. Following approval by the Centre Core Team, this project brief was shared with all students through a project brochure. This was followed by project briefing sessions delivered by the lead supervisors on each project and students were encouraged to attend the sessions on the projects that interested them. The students were asked to select up to 5 projects (in order of preference) that they would like to undertake for their PhD. The Stakeholder Engagement Officer then facilitated a series of project selection discussions, where a team of the primary supervisor and the stakeholders would speak to the students following a set of predefined questions. Both the primary supervisor and the stakeholders were instructed not to score or rate the students, but to indicate if they thought the students were suitable and if they could envisage working with them on the project. After the discussions, the Centre Core Team carefully optimised the allocation to ensure students were allocated projects which matched their preference and were also considered suitable by the stakeholders.

In the first round of discussions, we successfully allocated 9 student projects, followed by 2 student projects in the second round. There was a challenge in allocating a project to one student who was later given a Masters project that did not have a committed stakeholder (sponsor).

The table that follows lists the stakeholders and respective projects, illustrating the range of domains and challenges our first cohort is addressing.

Stakeholder Engagement and Project Development Reflection

The process generated 12 sponsored projects from 8 organizations (providing £350k of cash support). Over half (£240k, 58%) of the secured sponsorships came from new relationships created as a direct result of securing the Centre for Doctoral Training. The remainder came from existing relationships within the University, of which 2 (£70k, 16.6%) came from Computer Science, 2 (£70k, 16.6%) from Engineering and the final one (£35k, 8.3%) from Law.

The origins of the new relationships came from advertising, social media and word of mouth. The advert taken out in the New Scientist generated 43% of new sponsorship revenue. Word of mouth connections also generated a further 43% and the remainder was through networking events.

Six of the eight sponsoring organizations attended one or more of the sandpits with 30% of those attending more than one. UKHO and Swansea City attended a personalised session at the Computational Foundry to shape project ideas with academics and students. All stakeholders engaged in several calls, emails and meetings with the Stakeholder Engagement Officer and potential academic supervisors.

Stakeholder	PhD Project Title
The City and County of Swansea Council	Next-Generation Interactive Public Displays
Siemens Rail Automation UK	Can Machine Learning Be Applied to Automated Invariant Finding During Verification?
EMRTS Cymru (The Emergency Medical Retrieval and Transfer Service)	Participatory Design Approach to Developing a Fair Human in the Loop Decision Support System in the Emergency Control Room of the EMRTS
Tata Steel	Surface Inspection System
Facebook	Far-right Extremism, Online Propaganda and Hybrid Human-Automated Content Removal
Admiral Insurance	Creating Engaging and Risk-Predictive Driving Feedback based on Telematics Data
Amicus Therapeutics	Exploring Patient Focused and Machine Learning interventions for Rare Disease Diagnosis
UK Hydrographic Office	Celestial Navigation in Autonomous Vessels
UK Hydrographic Office	Coastal Navigation in Autonomous Vessels
Amicus Therapeutics	Understanding the Relevance of Biomarkers in Rare Disease using Machine Learning
UK Hydrographic Office	Geospatial Machine Learning in Safety Critical Systems

We have identified some areas to improve the process for the next cohort:

- ▶ Target more project briefs (ideally up to twice the number of students to provide more choice).
- ▶ Make the project briefings compulsory (students were too conservative in thinking about projects that were suitable for them).
- ▶ For students to get a better insight into the projects and for them to start building early relationships with the stakeholders, we will involve relevant students in the follow-up meetings after the sandpit events.
- ▶ Consider allocating students to the projects early into the process (i.e. before the brochure).
- ▶ During project allocation interviews offer complementary coaching sessions for students who may need some interview preparation.
- ▶ Be conscious about not allowing students to become wedded to a project idea that has not been co-developed (or sponsored).

Responsible Innovation and Equality, Diversity & Inclusion

An Equality, Diversity & Inclusion and Responsible Innovation committee was established in September 2019 to provide guidance and oversee the Equality, Diversity & Inclusion (EDI) and Responsible Innovation (RI) strategies of the EPIC Centre, ensuring that the Centre is a place that has a supportive, positive, inclusive culture. The committee is chaired by Cinzia Giannetti, and comprises 14 members, with 11 representatives across the different schools/colleges of the University, two external members and one CDT student.

The committee reports directly to the CDT Leadership Team.

To date, the committee has met 3 times (December 2019, January 2020 and March 2020). The key focus of these meetings was to identify the key objectives in line with the Centre's strategic priorities. The objectives were used to inform the action plan. The action plan is a working document that will be reviewed quarterly, with progress reported to the CDT Leadership Team.

Equality, Diversity & Inclusion Activities

The Centre has set a target to achieve a 50:50 gender balance by Cohort 3, as well as increasing the diversity, such as the number of students from differing ethnic minorities and the number of students from a range of socio-economic backgrounds.

We have, therefore, embedded the following practices within the Centre's marketing and recruitment process:

- ▶ Increasing the number of recruitment roadshows across the UK, particularly during January and February, targeting a variety of disciplines.
- ▶ Ensuring advertisements are checked and approved by the EDI&RI committee to ensure gender neutral language.
- ▶ Using our social media channels to promote the EPIC Centre.
- ▶ Promoting the EPIC Centre directly to undergraduate students in different disciplines.
- ▶ Creating promotional materials that highlight the EPIC Centre's supportive, positive, inclusive culture.
- ▶ Ensuring a gender inclusive selection panel during both the shortlisting and interview stages.

We will continue to evaluate the Centre's marketing and recruitment process annually by collecting baseline data to look for actual improvements in terms of diversity and achievement of EDI objectives.

Statistics Masterclass

In February 2020, Alan Dix delivered a 2 day statistics masterclass to target potential applicants to the EPIC Centre. This masterclass was used to target broader CDT recruitment across the University and externally by targeting disciplines with a good gender balance e.g. Arts and Humanities.

International Women's Day Celebrations March 2020

Students from our Centre are encouraged to participate in outreach activities and internal events. In celebration of this year's International Women's Day, the Computational Foundry held an alumni event to inspire our future graduates. Two of our female students from the Centre participated in the event, sharing their experiences with our future graduates.

Responsible Innovation Activities

On the 17th December 2019, Cohort 1 participated in the ORBIT Foundation's training. The purpose of this training is to raise awareness of RI and to help ensure RI is embedded into the mind-set of each member of the Cohort from the start. ORBIT training within the Centre has been scheduled to take place once per year going forward.

An RI sub working group was created in May 2020, to look at evolving the Centre's practices in terms of RI. The group aims to drive innovative RI practices of the Centre, whilst carrying out research in this field. The group plans to meet on a quarterly basis and is responsible for:

- ▶ Assessing current RI maturity by using the AREA toolkit and readiness assessment tool to evaluate current practices.
- ▶ Ensuring RI is embedded in the mindset of all CoIs and primary and secondary supervisors of students within the Centre, as well as our stakeholders.
- ▶ Adopting a 'train the trainer' approach whereby RI training would be given to a select few and then be rolled out to other potential supervisors.
- ▶ Ensuring RI principles are embedded within all PhD project proposals from the outset, including the project proposal template. Members of the Centre (students and supervisors) will have to describe how the proposal aligns to the people-first approach and highlight aspects of social good. This template will be reviewed and approved by the committee before the project can proceed.
- ▶ Promoting RI during any events or activities of the Centre such as sandpits. Creating success stories for RI within our Centre.
- ▶ To help influence and shape policy regarding the process of designing for RI.
- ▶ Preparing for forthcoming standards and regulations.
- ▶ Engaging with other CDTs to share good practice.

Dealing with COVID-19

The UK entered lockdown on 23rd March 2020, 6 months into the Centre's first cohort. The University closed all of its labs and buildings including the Computational Foundry. All teaching and learning was moved online using the Zoom platform.

To maintain connection with the cohort, Centre members met with the students both individually and groups on a weekly basis via Zoom. As well as checking on their well-being, these meetings were used to reflect on work progress and project opportunities.

The biggest impact on Cohort 1 was in regard to the project selection and allocation process. Before the lockdown we had planned a series of face to face meetings with the cohort and stakeholders and supervisors so that the students had a full understanding of the range of topics available. Most of these meetings had to be moved online, as were the interview processes for project allocation. The lack of opportunities to meet in ad-hoc ways physically during these times - in terms of members of the cohort meeting up with each other and the Centre team - led to higher levels of anxiety in the cohort over which project they might be allocated than would have occurred, we believe, in "normal" times. To mitigate this we ran a series of additional zoom meetings to openly discuss the process and students' concerns.

From June 2020, students embarked on their MSc project work - to be completed by the end of September - and supervisions and engagements with stakeholders have necessarily needed to be online. Further impacts anticipated at the time of writing include the inability to access labs for prototype construction or user studies. As the Centre's ethos is human-centred with intensive engagements with end-user groups, members of the public, stakeholder organisations etc, the lockdown and continued social-distancing will pose a challenge to some of the research work. Supervisors, stakeholders and students have been asked to ensure they rethink the programme of work for this initial MSc phase of research to focus on activities that can be carried out without the need for lab access or user engagement, leaving these aspects to either later in the summer or indeed for the main PhD element.

The lockdown also impacted on the recruitment and selection process for the second cohort. At the deadline for the applications in April we received far fewer (12)

applications than at the same time for the first cohort (where 37 applications were received). Recognising the impact of the lockdown and the uncertainties it brought we held a second recruitment round where 16 applications were received. For both of these groups of applications we ran an online information and recruitment event that included many of the activities used in the first year (see above) and resulted in 14 offers (79% Male, 21% Female) being made.

Into Year 2

As we move into the second year of operation, we are looking forward not only to welcoming a new cohort and encouraging and nurturing the existing cohort as they embark on the research work, but also a series of additional activities:

1. Monthly lunch-and-learn seminar series - members of the Centre and external stakeholders will present short perspectives on their work (initially the current Cohort 1 students, outlining progress on their PhD topics).
2. Side Projects - the current Cohort 1 will be supported to develop '20% projects' over Semester 1 and pitch these at the start of 2021. These side projects will give students the opportunity to work with other members of the Centre and beyond to do something focussed on societal/economy benefit and which can help illuminate their PhD studies.
3. Community Accountability Panels - we will establish a group of local citizens who will engage with our students twice a year, listening to their progress and perspectives and providing encouraging critique to help ensure what we do is understood and meaningful in the world we serve.
4. Local and global placements - the current Cohort 1 will be offered opportunities to visit academic and industrial settings to further enrich their work (subject of course to COVID-19 restrictions).
5. Annual Retreat - we plan the first full annual retreat for all Centre members in early 2021, if possible.

Cohort Perspective

Anna Carter, our student representative on the Leadership Board, was asked to comment on the cohort's perspective of the Centre. This is the feedback we received from our cohort.

Our CDT experience began with the interview process which included a day of activities to get to know the ethos of the Centre before having our interviews the next day. Having the activities the day before really helped to feel more at ease with the interviews.

The year began really well with a weekend away with lots of different activities including falconry. It was a great chance to meet all the other students and the CDT's academic team. We also went in teams to Gregynog which is a retreat for the third-year students to talk to them about CDT and that was also thoroughly enjoyed by many of the students. It also gave us an opportunity to sit down with Matt (the Director) and talk about our experiences so far within the CDT. Matt was a great listener and acted on all of these discussions. It would have been great to do some more events like these but obviously with Coronavirus that was not a safe possibility.

There were some early issues with being able to communicate within the group meetings about personal issues and this was fed back to the team and a new model was, therefore, embraced where we all had a personal tutor who we had bi-weekly meetings with and this had a significantly positive effect on the wellbeing of the group.

Throughout the year the cohort of students have really supported and helped each other and that was aided greatly by the diversity of subjects that the different students came from. This was facilitated by the space both communal and individual that we were allocated. The communal area has been really important to keep us as a cohort and provide us with a space that we are comfortable in.

We had several Sandpit events which had different themes throughout the year. These events became more useful throughout the year and by the final sandpit we were able to brainstorm about both project ideas and other issues stakeholders had both with the companies and academics.

The monthly leadership meetings have been

a really good way in which we can provide feedback to the team about our experiences with things that worked well and things that could be improved for next year and a lot of that feedback was acted upon which was really great. For example, the first semester was a very heavy semester and this feedback has enabled the modules to be more balanced next year. However, the module taught by Simon Robinson for the CDT was really helpful in laying the ground work for our future studies. The leadership meetings also enhanced the communication between the team and the students dramatically which aided in the wellbeing of the students and enhanced the connectivity between the students and the team.

The coronavirus pandemic had a serious impact on the way in which the cohort was able to interact both with the students and the staff, and this made the project selection process challenging. In offering everybody the chance to apply for every project, the team were trying to enable us to have maximum choice. However, the lack of ability to talk to each other in person and the prolonged time that it took for the process to be completed took a large emotional toll on every member of the cohort. We all had too much time to think about the project choices and with very little else to think about due to the pandemic it was hard to keep morale up.

Because of the restrictions of Covid-19 the examinations changed to alternative assessments and while recognising the pressure this will have put on the staff, a lack of practice questions for new modules and the lack of ability to go and visit lecturers as you would normally be able to was challenging. For example, many of the exams removed the usual book work questions due to them being open book but this meant that with the new applied questions it was an enormous struggle to complete them within two hours as expected. The cohort therefore felt that they were not able to complete the alternative assignments to the best of their abilities and without module surveys this semester it is difficult to provide this feedback.

Finally, we would just like to give mention to the weekly quiz and chat meetings that Jen Pearson has been organising on behalf of the students. It has been a massive morale booster and been a safe place for us all to join together and chat about personal and work issues whilst having great fun with a quiz.

Stakeholder Perspectives

We asked stakeholders to reflect on their experience with the Centre and include some of these, below:

Rolls-Royce

We have had a 10+ year collaboration with Swansea University Materials department. As we move along our Digital Transformation journey the ambition is to build Digital into everything that we do, including research activities. It makes sense to have the Materials department collaborate with the Computational Foundry on the problems that we are already collaborating with the University on.

We have had an excellent engagement with the Business leads and the academic leadership team at the Centre. We have had some really constructive discussions around Rolls-Royce requirements and how the Computational Foundry can help which has resulted in us planning projects that are outside my initial intention of driving collaboration between Swansea Materials and the Computational Foundry. There are some opportunities for Rolls-Royce to work with the Computational Foundry that are not currently part of the Materials department collaboration. Due to current business issues related to the global pandemic we have had to delay the start of the collaboration projects, but it is still very much my intent to launch those projects as soon as the situation improves.

Collaboration with the Centre gives us an opportunity to transform the way we do Materials research from a traditional field driven experiment to a lean, cost effective,

agile discipline that makes decisions based on data to drive the experiments that matter. The global COVID-19 pandemic has really highlighted the need for us to conduct all of our engineering activities in a more efficient manner. Transforming the way the Materials function operates to make better use of available digital tools is a key enabler for this.

*Ben Saunders, Team Leader –
Materials & Process Modelling, Rolls-Royce*

UK Hydrographic Office (UKHO)

The Centre strikes a good balance between machine learning and AI but also has the human element at the centre of the research. This is extremely important in our navigation projects where safety of life at sea is key to accurate positioning of a vessel. We have been able to choose great PhD students who have the right skills and interests to drive these ground breaking projects forward and demonstrate thought leadership in resilient navigation from both a manned and unmanned vessel perspective.

Our collaboration experience so far has been superb. We started communicating and collaborating right at the beginning of 'lock down', that said, this did not get in the way and we have been able to work with academic supervisors and interview students using virtual meeting technologies to great effect. Despite coming to the process for PhD projects quite late, the University has demonstrated flexibility and enthusiasm for our projects and we have matched some high

calibre students to the projects. The support from the University in this aspect has been excellent.

There are two thought leading computer vision related projects we are collaborating on with the University of Swansea and specifically the CDT. These projects will help mariners or indeed autonomous vessels determine their global position accurately in the absence or denial of a GPS signal. Resilient navigation is a very hot topic and the use of computer vision combined with ML and AI along with our own data and expertise could develop a world leading alternative method of accurate position fixing to augment GPS or even replace it. Initially this will demonstrate how the UKHO and UK in general is advancing safety of life at sea through resilient navigation. There is also the possibility of creating new or enhanced products and services that will aid the mariner and facilitate autonomous vessel navigation in the future, cementing the UKHO's position as a world leading Hydrographic Office.

Mark Casey, Head of Research, Design and Innovation, UK Hydrographic Office

Amicus Therapeutics

We have an aligned mission in putting people at the centre of everything we do. The Centre have been forward-thinking and proactive in their approach and have a wealth of expertise and positive engagement in our challenges. We really value the human computer interface focus of the Centre.

Our collaboration experience with the Centre has been excellent - a true collaboration feel. We have been very impressed by the attitude,

experience and expertise of the Centre's academics and students. In our projects with the Centre, we aim to gain an enhanced insight into our challenges and potential solutions in supporting and improving outcomes, and also the potential to inform further research and projects across the organisation

Laura Clark, NHS Value & Partnership Manager, and Dan Franks, Medical Director UK & Ireland, Amicus Therapeutics

Admiral Group Plc

We engaged with the Centre as we believe it's important to assist local universities continue to lead and develop their respective disciplines. We also felt that the Centre's collaborative approach was strongly aligned with Admiral's culture and could really offer value to our business. Our collaboration experience so far has been great. The inclusion of partners right from the beginning where students present their degree projects right through to candidates being selected for the project has maintained a great level of engagement and sparked some really great ideas.

From the project at the Centre, we hope to be able to create a whole new approach to our product engagement – one that is based on data, AI and Human Computer Interaction (HCI). We also hope to build a strong relationship with the University and the people involved to continue developing our products and provide a platform to the Centre for real world application of the learnings. In terms of impact, this project will provide Admiral with a basis for further product development and will pave the way for more scientific approaches to customer engagement.

Gunnar Peters, Head of Telematics; and Paul Taylor, Data Manager – Admiral Group Plc

Swansea Council

The aims of the Swansea Council, together with its Development Managers Rivington Hark, are to promote Swansea as a digital city, and key to this is the ability to retain graduates, and post-graduate higher degree holders in the city by providing both the physical environment such as offices & co-working spaces, supported by class leading fibre broadband, Wi-Fi & potentially 5G provision to create an environment where the innovators of tomorrow will choose to work, live & play.

The Council realised that to achieve this it needed to engage directly with Swansea University and those future graduates. The Centre for Doctoral Training offered a new and focused approach in the fields which the Council is seeking to promote and develop within the city, and the potential synergies could not be ignored; hence the Council's engagement with the Centre.

It was immediately apparent that there is a huge level of enthusiasm within both the staff, of all levels and specialities, and the students within the Centre to innovate and develop new technologies and methods of interacting with the digital world, together with a true sense of mission that the purpose and aim is to improve the ability of humans, of all levels and abilities, to understand and interface with digital technologies in order to better the quality and opportunities of their lives.

Our project with the Centre has multi-fold objectives, initially to develop a digital technology to improve and promote the city centre regeneration project, but also the hope to assist with the retention of graduates within the city to assist and drive its transformation and development as a digital city. In the short

term, the project will have an impact by making us aware of new possibilities and how to develop or incorporate these to improve the lives of those who live in or visit the city; in the longer term by engaging with the Centre more closely we hope promote the city as premier location for digital development and working. Closer liaison between the Council, the Centre and the University itself can only help in terms of creating both the physical environment and the desire to achieve, in order to enhance and improve the lives and experiences of residents, students and visitors to the city and the region.

Jonathan Hicks, Principal Physical Regeneration Manager, Swansea Council

Tata Steel

The Centre aims to use human interfaces with machine learning in order to bring out the best of both humans and computers. This is especially applicable in quality control in order to better train systems and for human operators to understand how the systems work and validate them. It's been a rewarding and informative experience, being fully engaged with the Centre from attending launch day, recruiting students, briefing students about the issues facing Tata Steel to co-creating new project briefs with the academics, and interviewing students for the projects. We now look forward to working on the project which will help the company in improving quality by combining the strengths on inspection systems and expert quality specialists.

The initial project is to look at existing human interface methods to 'shade' objects in order to compare with machine vision detection

systems. This will potentially allow different detection methods to be tested on different defects as well as showing operators how computers 'see' defects different to them. The project will aim to educate operators/ system owners to help understand why inspection systems 'go wrong' and help identify alternative ways to handle the errors. Potentially, this could be used as a basis for training in how inspection systems work.

Simon Lewis, Section Manager SIS/TLR, Through Process Quality – Technical, Tata Steel

Siemens

We have a long-standing collaboration with Swansea University on the topic of verification and are continually looking for areas in which this can be expanded. Additionally, the advertised topic areas were around emerging fields in which we do not have previous experience, and so engaging in this way could achieve value for the business. During the planning and interview stages we have had positive engagement with both prospective students and with the Centre organisers and staff. This has allowed us to identify the areas with the most potential for useful collaboration. The expected advantages of the PhD project are to improve the knowledge of machine-learning techniques within the business, and to investigate how these can improve the processes we use. Through a successful project, we hope to improve both safety and cost of current and future projects.

Mark Thomas, Research Manager; Tom Werner, R&D Software Engineer – Siemens Mobility Limited

Emergency Medical Retrieval and Transfer Service Cymru (EMRTS Cymru)

We engaged in a brief conversation on social media through a mutual partner who recommended the Centre. Following the introduction, we were able to attend a sandpit event and developed a working relationship from there. Once engaged with the Centre, we found that their vision aligned with that of our own organisation. So far, we are extremely impressed with the Centre's vision, and desire to apply technologies to real-world problems. Meeting with students early on ensured that there is a buy-in from both sides, and the selection process was extremely efficient and well run. Whilst we are only at the early stages, with our first project, we hope it will lead onto many more opportunities as we move forward.

Through our PhD project with the Centre, we hope to gain an insight into the problem of targeting scarce health care resources to the right patients. We hope to come out of the project with innovative techniques that will assist day-to-day decision making that clinicians have confidence in. This will improve efficiency of tasking, and align with our service aims of equity of care, and improving patient outcomes. We hope that if the technology is proven, it can also be applied to other emergency health care scenarios.

Prof David Lockey, National Director; David Rawlinson, Clinical Informatics & Research Manager - Emergency Medical Retrieval and Transfer Service Cymru (EMRTS Cymru)

Self-Evaluation of Centre against Plans

In this section we consider what we planned and how we delivered during the year.

Target/Plans	Progress to Date
Training the Trainers: Forming Event	A day-long forming event was held on the 19th July 2019 to review the aims and approaches of the Centre, provide opportunities for colleagues to gain further insights on the diversity and richness of views on the research challenges and to share supervisory approaches.
Training the Trainers: Master Classes	In February 2020, Alan Dix delivered a two day statistics masterclass. We are in the process of planning the first of our annual retreats for Cohort 1 and Cohort 2, where a number of masterclasses will be given.
Training the Trainers: Early Career Supervisor Training	We have paired experienced supervisors with talented colleagues who have not yet led a PhD student to completion for all of the PhD projects that will be commencing in October 2019.
Building a Movement: Launch of the Centre	Initial launch of the Centre was held on 16th September 2019. We updated all academic staff and researchers in the Computational Foundry, plus other select invitees from across the University, on the progress we have made to date with the Centre. The Director also explained how those present can contribute and engage with the Centre and its cohort of students, partners and projects.
Building a Movement: Induction Weekend	The induction weekend, an opportunity for everyone to meet and get to know one another but also learn about the ethos of the Centre and how we plan to build and grow as a Cohort, was held on the 21st and 22nd September 2019.
Project Co-Creation: Sandpits	We achieved the target of holding three sandpits during our first year of operation. These sandpits were held on the 30th October 2019, the 11th December 2019, and the 5th February 2020.
Project Co-Creation: Project Shaping Surgeries	These surgeries have been held monthly during the second semester of Year 1.
Recruiting the Cohort: Recruitment Roadshows	We held a recruitment roadshow at St Andrew's University and Edinburgh University, attended by one of our CoIs, Alan Dix, and one of our students from Cohort 1 (Anna Carter). Presentations about the Centre were also delivered by some of our CoIs to academics and students from other institutions including Lancaster University, York University, Glasgow University and Newcastle University.
Researcher Development: ORBIT Training	On the 17th December 2019, Cohort 1 participated in the ORBIT Foundation's training.

Researcher Development: Yearly Personal Development Review	During the Gregynog residential colloquium, Matt Jones met with each student individually to discuss their research aspirations. These discussions were followed up via one-to-one discussions during Semester 2. In addition, we have a structured reporting system where students and supervisors set SMART targets. The Centre has oversight of these records.
Researcher Development: Student Run Monthly Centre Seminar Series	Due to logistical issues, the student-run monthly Centre seminar series did not materialise in the way we expected. We plan to review this going forward.
Governance, Management and Operations: Centre Leadership Board	The Centre Leadership Board has met monthly as planned.
Governance, Management and Operations: Stakeholder Strategic Advisory Board	The first meeting of the Stakeholder Strategic Advisory Board is planned for autumn 2020.
Governance, Management and Operations: International Calibration Committee	The first International Calibration Committee is due to meet in autumn 2020.
Governance, Management and Operations: Responsible Innovation Committee	An Equality, Diversity & Inclusion and Responsible Innovation committee was established in September 2019. The committee has met three times (December 2019, January 2020 and March 2020), with plans to meet on a quarterly basis going forward.

Conclusion

The first year of the Centre has been inspiring, successful and challenging during the global pandemic. We have laid strong foundations with committed academics, stakeholders and highly able PhD researchers. In particular, we are pleased that despite financial and logistical issues presented by COVID-19, stakeholders have invested in the programme with substantial cash and in-kind contributions. In addition, we have been able to deliver most of the training activities as planned despite the need to move to virtual working.

Looking to the next academic year 2020-2021, we are pleased to have recruited another group of highly committed individuals to be Cohort 2 and expect that growth in our community with 2 cohorts at the Centre will afford interesting and exciting additional collaborations and interactions.

*Matt Jones Director, EPIC
22nd July 2020*

