OATech+ Network

Cardiff University

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Contents of the Report

1. Network management

a. Management team and structure

The OATech + Network has established an Operations Group (OG), to organise the network activities. This group is comprised of the following personnel:

Principal investigator: Prof Cathy Holt (Cardiff University)

Co-investigators: Prof Anthony Bull (Imperial College); Prof Phil Conaghan (Leeds University); Prof Andy Pitsillides (RVC); Prof Phil Rowe (University of Strathclyde).

Network Coordinator: Dr Leanne Sawle (Cardiff University)

Since the announcement of the award a Network Coordinator has been appointed, and a series of Theme Leaders (TLs), have been appointed. The TLs were recruited through applications submitted by Network Partners, and represent each of the research themes identified as priority areas for osteoarthritis research. These are represented below:

Next generation of leaders in OATech Mentoring the best early career researchers in order to support their transition into future PIs **Lead: Prof Jim Richards**	**Biomechanics / mechanobiology of OA and the relationship to clinical measurements** **Lead: Prof Martin Knight**	**Novel experimental technology** for human / animal in vivo and in vitro studies in the lab, clinic and beyond **Lead: Prof Sally Roberts**	**Experimental and predictive modelling technology** including design of experiment and classification tools, FEA, MSK and rigid body modelling, and validation of subject-specific models **Lead: Prof Damien Lacroix**
Establishing high-level evidence for the safety and efficacy of medical devices and systems **Lead: Dr Debbie Mason**	**Establishing an impact toolkit** to accelerate the adoption of potentially good products via alternative means to standard clinical trials **Lead: Prof Alison McGregor**	**Data analysis technology** to combine datasets from multi-centre, longitudinal and cross-sectional studies, enhancing epidemiologocal tools with novel tools from computer science **Lead: Dr Mark Elliott**	**Lifestyle interventions** Exploring the use of non-medical, "healthy living" interventions **Lead: Prof Richard Jones**
Imaging and image analysis tools	**Clinical Liaison:** **Dr Nidhi Sofat**		

Theme leads, expertise and affiliations:

Prof Jim Richards (Professor of Biomechanics and Lead for the Allied Health Research unit, University of Central Lancashire)

Prof Martin Knight (Professor of Mechanobiology and Director of Research, Queen Mary University of London)

Prof Sally Roberts (Spinal Studies and ISTM, Keele University)

Prof Damien Lacroix (Professor of Mechanobiology, University of Sheffield)

Dr Debbie Mason (Reader, School of Biosciences, Cardiff University)

Prof Alison McGregor (Professor of Musculoskeletal Biodynamics & Director of Educational Strategy & Quality, Imperial College London)

Dr Mark Elliott (Assistant Professor of Healthcare Technology & Behaviour Change, University of Warwick)

Prof Richard Jones (Professor of Clinical Biomechanics, University of Salford)

Dr Nidhi Sofat (Clinical Reader and Consultant Rheumatologist, St George's University London)

Together the operation group and theme leaders make up the research forum.

It is still necessary to appoint a lead for the imaging theme. Until this time, the operations group will ensure that it is represented in any discussions/ activities, and are seeking to appoint someone with appropriate experience.

Please outline the management structure in place to govern the activities of the network. This may have evolved since the announcement of the award. (Max 250 words)

b. Advisory structures

A Steering Committee (SC), has been established to act as an advisory body to the research forum, and to review and approve outputs including the Annual report. The committee is comprised of representatives both national and internationally based, and from across key stakeholder groups. This includes patient/ public representatives, academics, clinicians, and industry.

- Peter Roberts (patient representative) – Former deputy headteacher from South Wales, involved in several patient engagement/ involvement groups in different areas of healthcare. Chosen because of his experience of living with OA (Peter has OA of the hand and his wife suffers from OA), and his willingness to engage and share his experiences.

- Ilse Jonkers (KU Leuven) – Internationally recognised for her research in biomechanics and musculoskeletal modelling –chosen for her wide-ranging view of the need for OA experimental technology and current focus on MSK and knee joint modelling
- Robert Bigsby (Zimmer Biomet) –Director of Development - Hip Division – chosen for his longstanding industrial experience in the field of OA, and his support for the need of an Network to facilitate multi-disciplinary research.
- Howard Hilstrom (Leon Root, MD Motion Analysis Laboratory Hospital for Special Surgery, New York) – Internationally recognised for his research in biomechanics and clinical musculoskeletal applications –chosen for his wide-ranging view of the need for OA experimental and clinical technology.

Further members will be recruited during the next 6 months, and clinical representation is an area which will need to be addressed. Some suggestions have been made. However, the wide-ranging nature of the N+, with over 100 members, ensures that all aspects of academic, clinical and industry steerage are represented and appropriate members will be called on for specific strategic and N+ funding meetings and events throughout.

Arthritis Research UK have also expressed an interest in facilitating OATech+ focus events and the Research Programme manager, Shereen Shabbah, attended the 2-day Initial Focus Meeting to gain a firm understanding of OATech+ aim and objectives.

Please briefly outline the advisory streams available to the management team and which individuals are involved. (Max 250 words)

c. 'Plus' funding mechanism

The following has been taken from the Network Charter and expenses documentation, and has been made available to all Network Partners.

Assessment and Funding Process

All Network Partners (excluding the Operations Group and the Steering Committee) shall have equal opportunity to bid for funding for research / technology priority projects.

Assessment criteria shall differ for each funding opportunity; however, the criteria and weighting shall be made clear to all members.

All resulting applications shall be subject to a peer review process. The review panel may vary according to the nature of the funding opportunity; however, the panel will always comprise of core constituents representing:

i.   The Operations Group (chair)
ii. Experts in the field
iii. Patients
iv. Clinicians
v.   Industry (where appropriate)

Constructive feedback will be given to all applicants.

A standard peer review form will be used based upon the EPSRC practice of judging against the following criteria:

- Quality
- Importance
- Impact
- Applicant
- Resources and management
- Overall assessment

In keeping with EPSRC assessment practice, the principles of **transparency** and the **right to reply** shall be in effect.

Feasibility Study Funding

Funding will be awarded based on the prioritized knowledge gaps defined during the Initial two-day Focus meeting (facilitated by Know Innovation) that was held in May 2017 in Cardiff, and subsequently agreed by the research Forum (RF). This was attended by all the OG and TLs, and the first RF meeting was also held.

The process of defining these priorities has been ongoing since the Focus meeting, and TLs with their teams have defined future OATech activities to establish consensus groups and documents and decide on the approach to awarding Research Feasibility Funding, via Sandpit, Hackathon, or outline application.

Funding will be awarded on the basis of consensus during the defined focus activity, with input from appropriate mentors taken from the SC members.

The Transparent Approach to Costing (TRAC) methodology to calculate full economic costs is to be used.
Funding for feasibility work will be awarded using the EPSRC fEC methodology. Therefore, if funding is awarded, The OATech Network+ will provide funding at 80% of the fEC.
The organisation securing the funding must agree to find the balance of fEC for the project from other resources.

In this section we would like you to outline the mechanism you have in place to award the 'plus' funding. This will help us to develop best practice guidance for future networks but will also highlight if there are any areas that we need to provide guidance on to ensure that there are no issues when the Final Expenditure Statement is due. (Max 500 words)

d. Management of 'plus' awards (including mentoring/ development)

Plus awards will be awarded once the theme priorities have been agreed and the first network priorities established. Following the outputs of the focus meeting, the final theme proposals will be reviewed at the upcoming RF meeting.

Awards will support groundwork projects (including scoping reviews, feasibility studies and technology/ software development) which will underpin future network activity.

By the end of the OATech+ Network funding period (September 2020), the outputs of the plus award work (and other networking events) will underpin further grant applications including programme, facility, responsive mode and cross RC/Charity initiatives.

In terms of mentoring and development, a theme has been established to implement a programme of development to underpin the progression of early career researchers. The theme group, led by Prof Jim Richards, can apply for plus funding to support its priority activities. Regarding the application for standard mode proposals there are several PIs involved in the OATech+ who will be able to provide appropriate Peer Review and guidance to ensure that all outputs form OATech+ are translated into successful funding applications with high novelty and impact value, across the range of Themes.

Other opportunities, led by theme leaders, will ensure that all researchers have the opportunity to attend cross-disciplinary training and events.

Please detail how the 'plus' awards will be/are being managed and whether there are plans to engage with them as a cohort – for example providing mentorship in helping them move from 'plus' awards to developing a standard mode proposal to the Research Councils (or other funders). (Max 250 words)

e. Outputs

*** A print out of your Research Fish report can be used instead of the table below*

Number of network participants (individuals) and how this has changed since the start of the award:	133 partners (originally 91) 4 steering committee advisors
New partnerships: Academic institutions Industrial partners Charities Clinical Other	Arthritis Action Arthritis Research UK
Total grant expenditure to date:	£106,353.10
Leveraged funds:	£73046.48

Funding applications submitted (or in progress) to EPSRC or other funders (please highlight which):	**A Wellcome Trust engagement grant application is in progress.** **EPSRC Bright Ideas Outline proposal (Holt et al, Cardiff), submitted August 2017, awaiting response regarding progression to the Pitch Stage to be held in October** **EPSRC Investigator Led proposal (Holt et al, Cardiff with Kent, Cardiff Met), submitted Spring 2017, awaiting reviewers' comments** **EPSRC Investigator Led proposal (Brean et al, Bournmouth, Meakin, Exeter, Holt, Cardiff) - to be submitted October 2017** **Technology touching life submission has been made, and through to the next round: Organ-on-a chip technologies. Three therapeutic areas: cancer, cardiovascular and musculoskeletal. PI Prof H Screen** **CIs: Professor Martin Knight, Professor Anthony Bull, Professor Andy Carr, Professor Alicia El Haj, Professor Paul Workman, Professor Julian Gunn, Professor Matt Dalby, Dr Katia Karalis**
Other indicators of success and impact:	**Attendance and feedback from the Involving People Network annual event.** **Establishment of a network website (http://oatechnetwork.org/), which will go live in October 2017, and social media streams (https://twitter.com/OATechNetwork https://www.facebook.com/OATechNetwork/)** **Presentation of a clinical stakeholder engagement poster at Physiotherapy 2017.** **Commissioned to write a paper on the network and stakeholder engagement in Research for All.**

f. Pathways to Impact

Activities have corresponded to the original pathways to impact statement. To support continuation and to facilitate advancements, an Impact Toolkit Theme has also been established which will also focus on a taxonomy of OA interventions.

Following the focus meeting the Impact and High-Level Evidence Themes may merge. This integrated working group has submitted a proposal for their priorities, and will be reviewed for funding opportunities at the research forum meeting.

How do past or planned events relate to the impact and engagement plans detailed in the original Pathways to Impact plan? Are there any lessons learned that would influence the PtI on future proposals to EPSRC and the associated resources requested? Evolution of the impact plan is fine (and to be expected) and we are asking for this information to help with future guidance or materials for the Impact and Translation Toolkit (Max 500 words)

g. Ethics

All awards made, will be subject to providing evidence that appropriate ethical approval (when required) has been obtained.

On application for funding, an ethical approval statement will be required. Compliance will be evidenced on the peer review paperwork (based on the EPSRC peer review form).

Any funding that is successfully awarded will only be released following receipt of a copy of any necessary ethical approval. This will be attached to peer reviewed forms for monitoring purposes.

How has the issue of ethics been managed across the feasibility funds awarded through the network? (Max 250 words)

2. Network events

a. Past events

In this section we would like to gather some high level information about the events that you have run during the course of the network. We would like to use this information to get an idea of the reach of the cohort of networks and also to identify ways in which we can work with the networks on future activities. Information from the reports may also be used to identify best practice guidance for future networks.

Event title:	**Involving People Network Annual event**
Date:	**1st March 2017**
Event type: *(connecting disciplines/ sectors, public engagement, call scoping/ workshops, seminars, policy, training,… other)*	**Attended to deliver a pitch session to introduce the OATech+ Network and engage with stakeholders.**
Number of attendees:	**10**
Target audience:	**Key groups included: Public, patients, charities, NHS clinicians.**
Approximate cost:	**0**
High level outputs:	**Received feedback on the website structure, social media strategy and the network. This informed decision making on these areas.** **Recruited a patient representative for the steering committee.** **Submitted feedback report to the Involving People Network.**
Next steps (if appropriate):	**To apply to deliver a further pitch at next year's event. Report on the progress of the network.**

Summary of event:

[Please describe the event aims and a brief commentary on how the event went along with any outputs or findings. Max 250 words]

Event title:	**Focus meeting**
Date:	**16-17th May 2017**
Event type: *(connecting disciplines/ sectors, public engagement, call*	**A professionally facilitated event with the aim of establishing multi-disciplinary working groups to discuss and prioritise theme priorities.**

scoping/ workshops, seminars, policy, training,… other)	**Groups were led by theme leaders.**
Number of attendees:	**45**
Target audience:	**Network Partners and the steering committee**
Approximate cost:	**£21000**
High level outputs:	**Draft priority reports for each research theme**
Next steps (if appropriate):	**Formal proposals are in the process of being submitted for research forum review.**

Summary of event:

[Please describe the event aims and a brief commentary on how the event went along with any outputs or findings. Max 250 words]

Event title:	
Date:	
Event type: *(connecting disciplines/ sectors, public engagement, call scoping/ workshops, seminars, policy, training,… other)*	
Number of attendees:	
Target audience:	
Approximate cost:	
High level outputs:	
Next steps (if appropriate):	

Summary of event:

[Please describe the event aims and a brief commentary on how the event went along with any outputs or findings. Max 250 words]

b. Future activities

Please detail any information about upcoming calls or scoping events that you are in the process of planning. We would like to use this information to feed into EPSRC scoping activities and also to identify ways of maximising impact from the events.

Event title:	**BORS 2018**
Date:	**10-11th September 2018**
Event purpose:	**To link the OATech + Network with an established event/organisation.** **To add a session to this meeting for OATech + partners.** **Give the opportunity for sharing of current research**
Target audience:	**Those partners interested in orthopaedic research**

Event title:	**Arthritis Action Group, Wales**
Date:	
Event purpose:	**To build on the Arthritis Action groups around the UK, by establishing a patient group in South Wales.** **To engage with patients and the families** **To support the work of Arthritis Action**
Target audience:	**Patients and their families and carers.**

Event title:	
Date:	
Event purpose:	
Target audience:	

Future calls

This will be confirmed following the upcoming RF meeting.

Please list potential topics of future calls for 'plus' funding activities.

3. Summary of 'plus' funding awards

None yet awarded. The first awards are expected to be announced by the end of the year.

Overview

Total value of 'plus' funding on the grant:	**0**
Number of awards funded to date:	**0**
Total value committed:	**0**
Total value leveraged:	**0**
Total number of institutions involved:	**0**
Estimated number left to award:	

Successful awards

Title:	
PI (name and academic position):	
Institution:	
Co-Is:	
Grant value:	
Duration:	
Summary (Max 250 words):	

Title:	
PI (name and academic position):	
Institution:	
Co-Is:	
Grant value:	
Duration:	
Summary (Max 250 words):	

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Title:	
PI (name and academic position):	
Institution:	
Co-Is:	
Grant value:	
Duration:	
Summary (Max 250 words):	

Title:	
PI (name and academic position):	
Institution:	
Co-Is:	
Grant value:	
Duration:	
Summary (Max 250 words):	

4. Best practice

To help us advise future networks we are really interested to develop best practice from our current network awards. With this in mind we would like to get an idea of things that have worked well (this can be from any aspect of managing a NetworkPlus) and also things that perhaps didn't work so well or things that you would change going forward.

a. Things that have worked well:

- The Initial Focus Meeting brought together a good mix of multi-disciplinary partners. This enabled working groups to work on establishing theme priorities and identify knowledge gaps and consensus requirements for OATech+.
- The first engagement activities have received positive feedback across groups including patients, charities, the NHS and clinicians. Feedback has included the positive response to a public / patient portal on the network; good involvement of different stakeholders and acknowledgement of the need for this network; clinicians commenting on how an activity involving the social, psychological and physical consequences of OA was a real eye-opener for them; requests for Facebook for added as a social media channel for older users, and the importance of patients being able to talk to each other and share experiences.
- An engagement event led to the recruitment of a patient to the steering committee.
- The interest amongst partners is growing, and the partner list continues expand.

b. Things that you would do differently:

- To include more of the clinical partners at events, earlier notification is needed to secure their attendance. Eight weeks' notice was not enough time for many surgeons to attend the focus meeting. We need alternative strategies - other than simply extending the invitation period - to encourage clinical engagement.
- We need to find some way of assuring ourselves that there is appropriate representation of all disciplines at our events.
- Progression. Things can move slowly when decision making is dependent on many people coming together at the same time.
  Establishing key meeting dates at the earliest opportunity may be able to direct more people to deadlines.
- Coordinator visits to TLs (or vice versa), to work with them when working on TL documents.

5. Next steps

The network is working hard on stakeholder engagement to assure its continuation after the lifespan of the network funding. Examples of this include the website and social media, attending engagement events, and producing articles. This will be developed over the remainder of the project to share and promote the outputs of the network activities and feasibility work with stakeholder groups from the public and patients, to clinicians and policy influencers.

By bringing multi-disciplinary researchers together to undertake the feasibility work required to seed larger, future advancements, the intention is for larger responsive mode, shared facilities, open access and programme grant funding applications to be submitted by the end of the project duration. These will be submitted across the RCs, where appropriate and across the related charities, NIHR, Health and Social Care Research (Wales), and KTNs, to ensure the correct funding stream is being utilised. Also important is the mentoring for ECRs when submitting their first applications for EPSRC funding.

The continuation of the network will also be underpinned by the development and mentoring of the next generation of leaders in this field, and links with Arthritis charities. For example:

- The OATech+ Network has invited ARUK representatives to events to promote collaborative working, and to support and enhance network focus activities. We are also building social media connections and cross publishing of website resources to demonstrate that we are working together and showcasing the work being undertaken in the field of OA.
- The ECR activities will be planned to ensure ECRs can attend cross disciplinary as well as discipline specific training and events.
- The same opportunities will be available for more experienced researchers to develop their knowledge and skills across multiple disciplinary areas.

Have you considered what the network may look like beyond the lifetime of the original award? Are there any succession plans? (Max 500 words)