

# University of Birmingham Business Club

## Breakfast Briefing

# Manufacturing Future Healthcare technologies

Wednesday 29 November 2017

**EPSRC**

Engineering and Physical Sciences  
Research Council

**B** Business with  
Birmingham

UNIVERSITY OF  
BIRMINGHAM



UNIVERSITY OF  
BIRMINGHAM

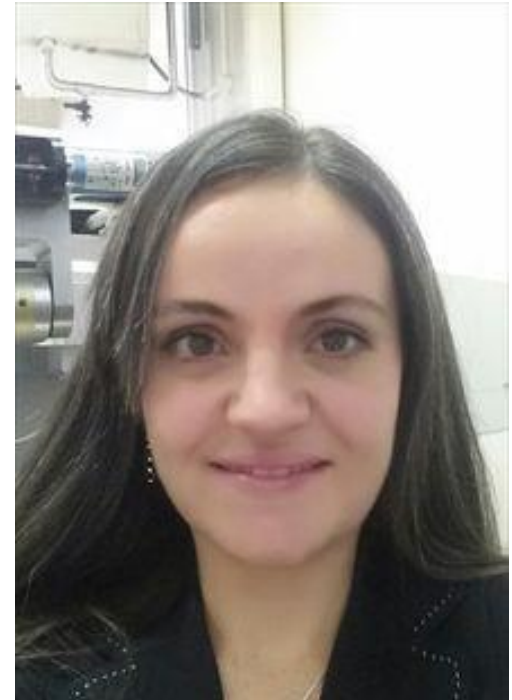
COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

# Manufacturing Future Healthcare Technologies



# Dr Naomi Green

- ❑ Research Fellow in the Biomedical Engineering Research Group, Department of Mechanical Engineering, University of Birmingham
- ❑ Specialist in the design, development and testing of biomaterials and medical devices
- ❑ Contact her at [n.c.green@bham.ac.uk](mailto:n.c.green@bham.ac.uk)



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

# Institute of Translational Medicine

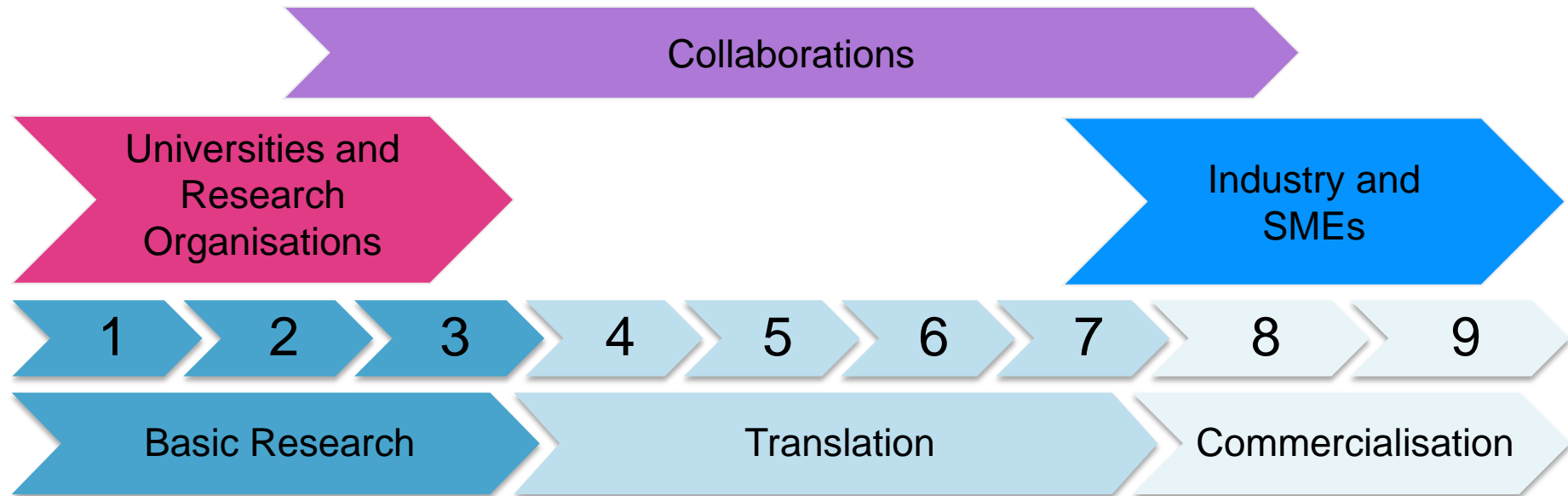
- ❑ Birmingham Health Partners project
- ❑ Aim to accelerate innovation in healthcare
- ❑ Improve patient outcomes
- ❑ Get ideas to market and clinical practice faster and more cost effectively
- ❑ Multidisciplinary and industry focused
- ❑ Covers whole Bench to Bedside process



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

# Technology Readiness Levels



# Support for SMEs

- Three projects to support SMEs to develop medical devices and healthcare technologies



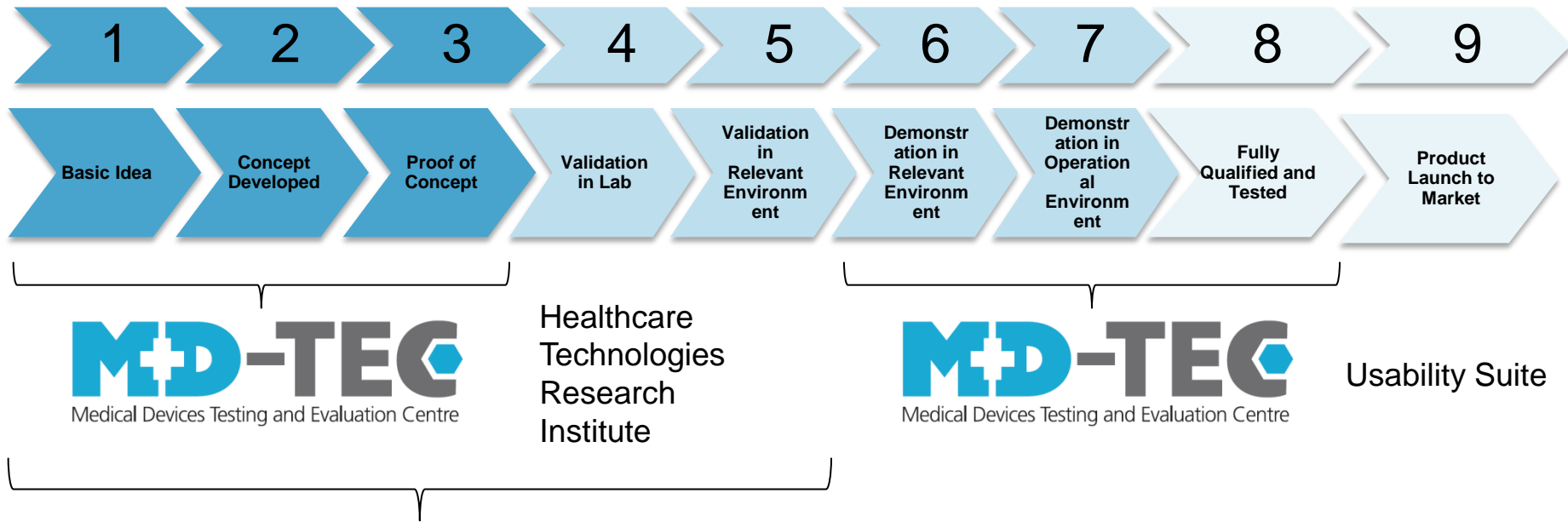
**Trauma Management  
Healthcare Technology Co-operative**



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

# Support for SMEs



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING  
AND  
PHYSICAL SCIENCES

**Trauma Management  
Healthcare Technology Co-operative**

# Innovation Engine



- ❑ Unique opportunity to bring together SMEs, clinicians and academics to deliver innovative solutions to healthcare challenges
- ❑ Enables SMEs to participate in solving the healthcare challenges of larger organisations, such as University Hospitals Birmingham NHS Foundation Trust.
- ❑ Minimum 12 hours of business assistance and consultancy to support SMEs to develop new or existing products/services



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES



**European Union**  
European Regional  
Development Fund



# Innovation Engine



- ❑ Minimum 12 hours of business assistance and consultancy including market and strategic insight, research, technical support and design guidance
- ❑ Access to challenges and opportunities identified by partner organisations
- ❑ Access to key people within partner organisations
- ❑ Training and mentoring geared around innovative problem solving
- ❑ Assessment of your organisation's innovation capability and maturity
- ❑ Admission to over 140 events and workshops on the Innovation Birmingham Campus
- ❑ Information about other funding and support programmes



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES



**European Union**  
European Regional  
Development Fund

# Innovation Engine



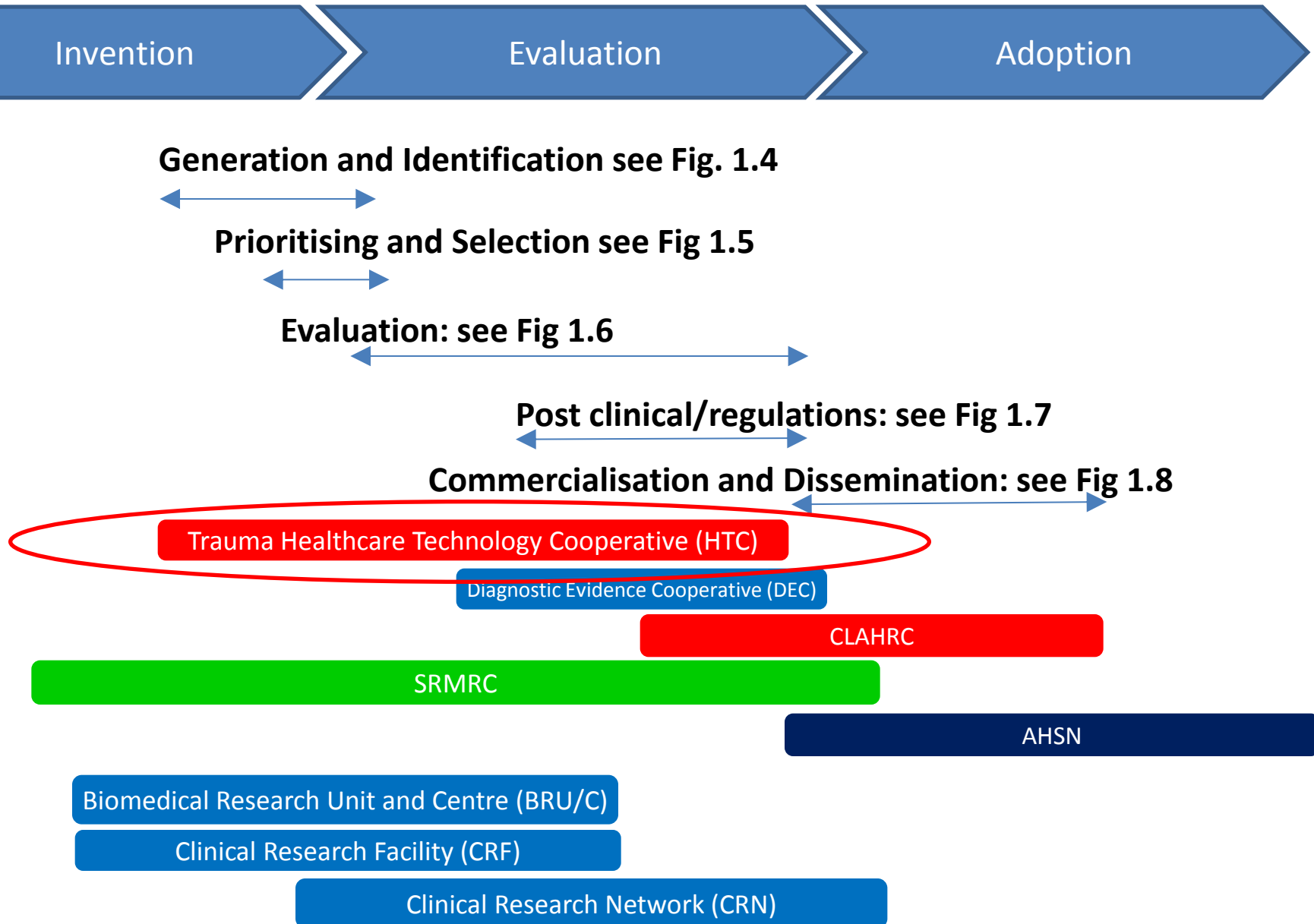
- ❑ Provide technical advice and support from University researchers
- ❑ Get your innovation in front of the right people
- ❑ Identify external funding opportunities and collaborate on joint applications
- ❑ Develop or improve the design of your product
- ❑ Help with defining the problem and developing a Product Design Specification
- ❑ Assistance with developing and manufacturing a prototype of your device
- ❑ Access the University research laboratory facilities



# NIHR Trauma Management Healthcare Technology Co-operative



# Where does the HTC sits?



# Overview



National Infrastructure to support the NHS to collaborate with industry to develop new medical devices and healthcare technologies for the benefit of patients.



## Aims:

- act as a catalyst for NHS “pull” for the development of new medical devices, healthcare technologies and technology-dependent interventions
- improve the quality of life and effectiveness of healthcare services for trauma patients from pre-hospital through to rehabilitation in the home
- work collaboratively with patients and patient groups, charities, industry, clinicians and academics.





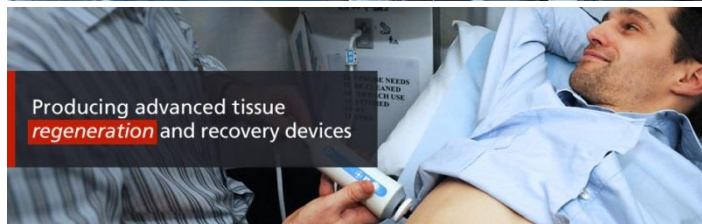
# Why Trauma?

- 15 deaths every day
- £3.5 bn per annum
- 2020 2<sup>nd</sup> largest cause of “Life years lost”
- Pain, suffering, loss of dignity, disability
- Technology rich solutions
- Short & long term benefits



# Trauma HTC Clinical Themes

The Trauma Management HTC supports the management of trauma patients throughout their pathway from point of injury through to getting people back on their feet ...



**Immediate Care:** Decision support systems, better monitoring, better diagnostics and safer transport will all have major benefits to patients and the public.

Theme lead: Professor Antonio Belli

**Secondary Care:** Surgical interventions, better infection control, management of inflammatory response, better pain control, novel respiratory support, monitoring and earlier detection of deterioration

Theme lead: Dr Mark Foster

**Regeneration:** tissue engineering for replacement of cell and tissue. Neural tissue regeneration has huge potential to reduce long term disability from spinal cord and other neurological trauma.

Theme lead: Professor Ann Logan

**Rehabilitation:** Improved prosthetics, the use of robotics, virtual reality and functional electrical muscle stimulation being real-world examples of areas where short term benefits are readily realisable including maintenance of muscle mass.

Theme lead: Dr Michael Grey

# Support

**Generation and identification/Regulations**



**Prioritising, Selection and Evaluation**



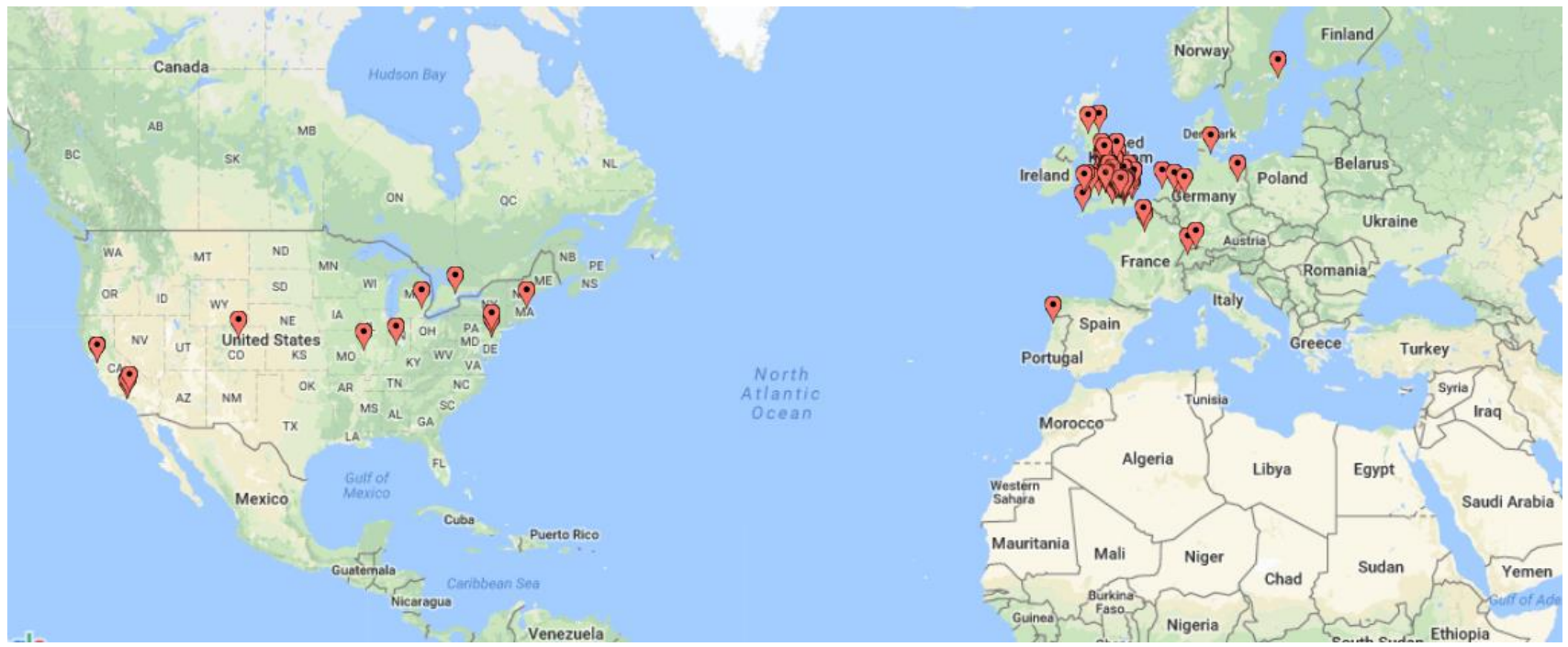
**Commercialisation and Dissemination**



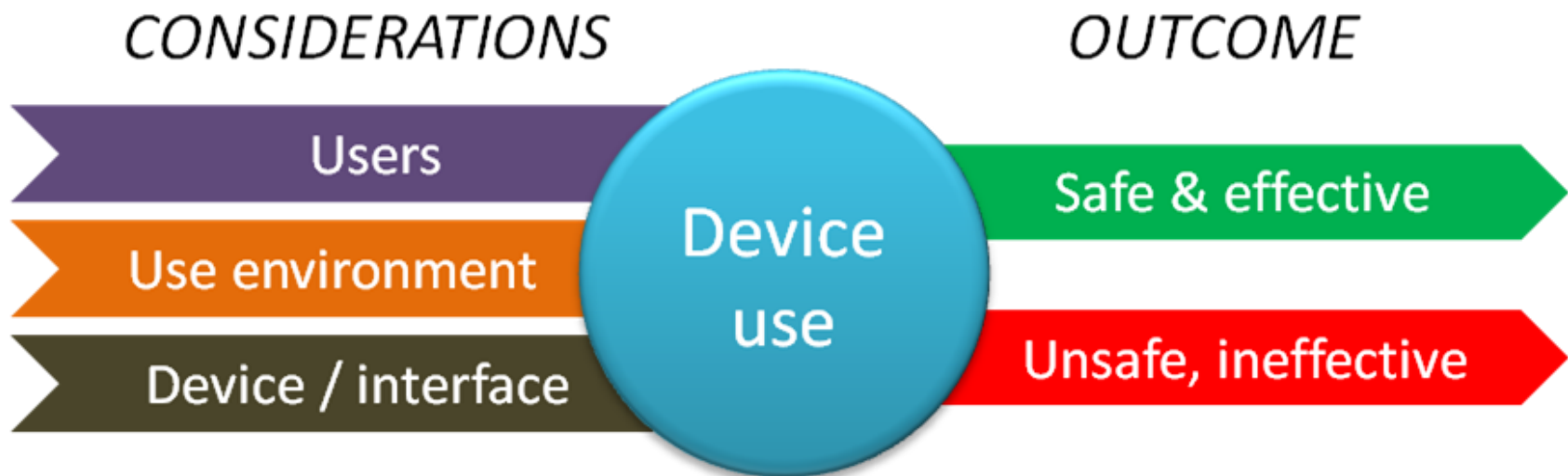


# Project summary

- HTC has supported 86 proposals
- Current success rate - 45% success rate with grant application
- 39 successful awards
- 209 interactions with industry and academia, 60 have resulted in strategic partnerships with work going forward
- 87 CDA's signed with industry, 49 of which are UK based SME's



# ISO/IEC 62366 and Usability evaluation



**Trauma Management**  
**Healthcare Technology Co-operative**

# NIHR TRAUMA MANAGEMENT MIC - JANUARY 2018

## CLINICAL THEMES

## PROCESS

**ACUTE RESPONSE  
TO INJURY AND  
STABILISATION**  
(PROF ANTONIO  
BELLI)  
- POINT OF IMPACT,  
CRITICAL CARE,  
SEPSIS

**REPAIR,  
REGENERATION  
AND  
RECONSTRUCTION**  
(PROF ANN LOGAN)  
- SURGICAL  
INTERVENTIONS,  
BURNS & ACUTE  
WOUNDS

**RE-ENABLEMENT  
AND  
REHABILITATION**  
(PROF DEBORAH  
FALLA)  
- PROSTHESIS,  
ROBOTICS, MUSCLE  
STIMULATION

**PAEDIATRICS (Dr Heather Duncan)**

**PPI/E/P (Ms Hilary Brown)**

**PROs (Prof Mel Calvert )**

**HEALTH ECONOMICS (Prof Richard Lilford)**

**HUMAN FACTORS (Dr Tom Clutton-Brock)**

### Supporting Infrastructure

NIHR Inflammation BRC, NIHR SRMRC, NIHR Wellcome CRF,  
NIHR CLAHRC WM, NIHR TRCs, NIHR CRN, NIHR Innovation Observatory,  
NIHR MICs, ECMC, PM Catapult, NICE, CPROR

**1. MIC GENERATION & IDENTIFICATION**  
Initial Engagement, user-defined needs  
(patient, clinical & industry), horizon  
scanning, collaborations (MICs)

**2. MIC PRIORITISING & SELECTION**  
User-led workshops, Patient reported  
outcome measures,  
Identifying resources, External funding,  
Systematic review,  
Health Economics

**3. MIC EVALUATION**  
Proof of concept studies, Prototype  
development, Clinical Investigations,  
Safety Testing, Usability Studies,  
Human Factors

**4. MIC POST CLINICAL/REGULATIONS,**  
CE marking, FDA Approval  
Post market clinical follow up

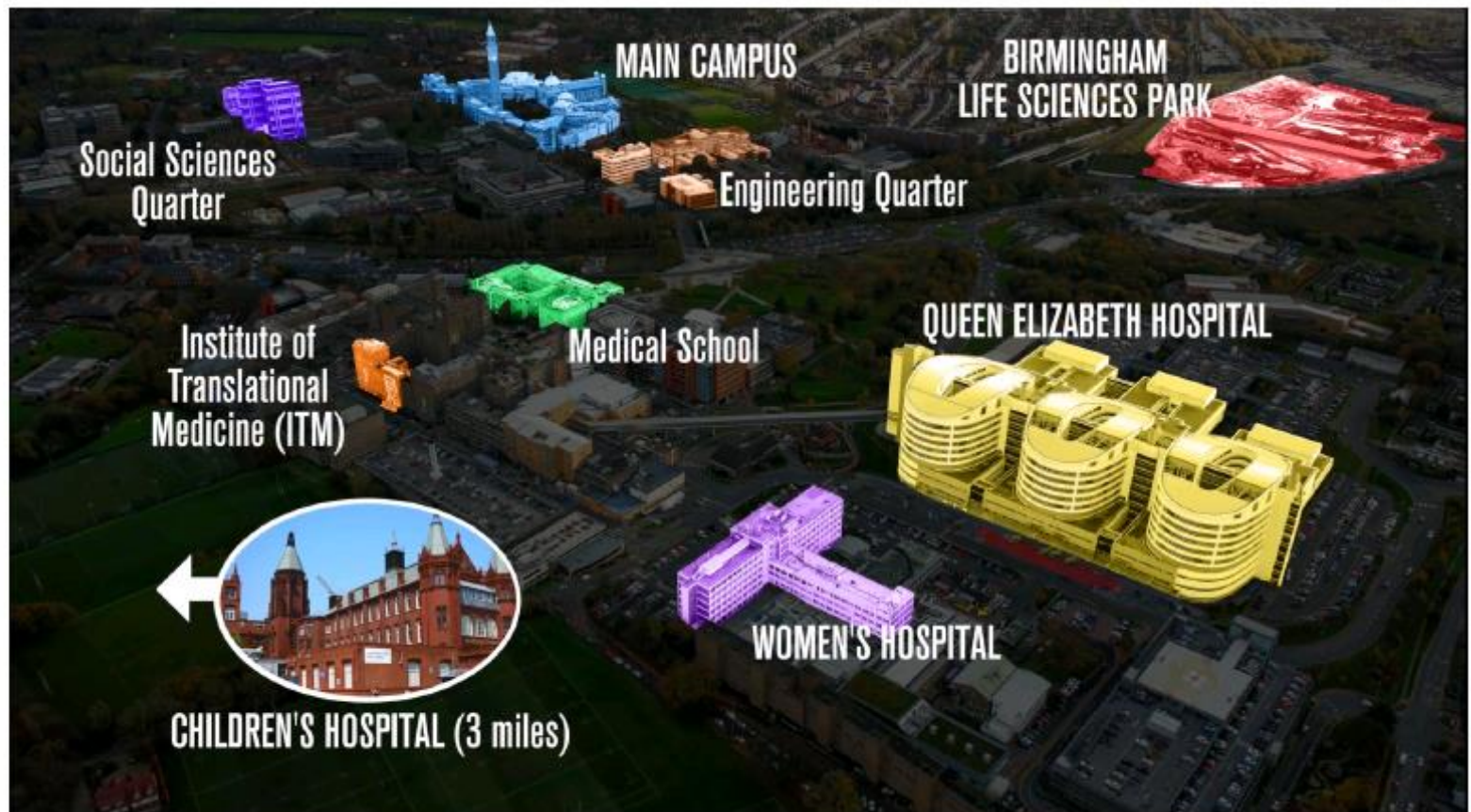
### Industry Engagement

AHSN, NOCRI, Medilink,  
MidTECH, KTN, DIT

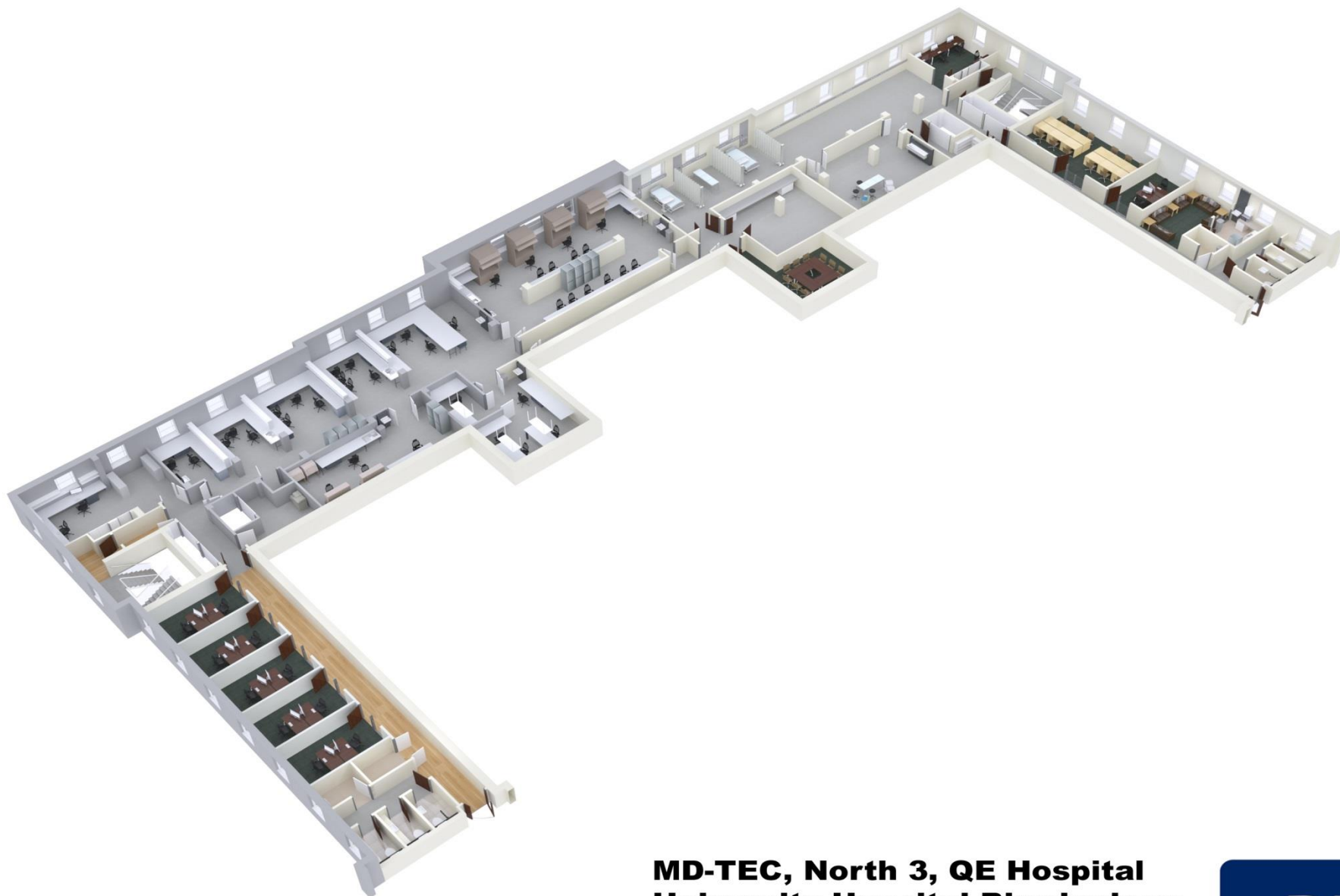
**CROSS-CUTTING**

So where and what are we?

MD-TEC sits within the Institute of Translational medicine and its objective is to enable Life Science SMEs to bring products to market quickly, at less cost and with reduced risk. The ERDF element allows funded interaction to eligible SMEs.









- £7.3 Million investment
- 3 Major Research partners
- Access to one of the best clinical research bases in UK
- Unique State of the Art facilities
- Mirror image of acute environment
- Workshops & 1:1 support



# So what can we do for Life Science SMEs?

## Funded\* support for the following

- Human Factors & Usability Testing, Simulation & Evaluation
- Usability and simulation areas for both acute and primary care with AV capability.
- Product testing and evaluation in terms of usability and safety for medical products focused on class 2 and 3 devices (ISO characterisation)
- Access to a growing research pipeline around the development of healthcare technologies ranging from dressings and cell therapies through to novel diagnostic devices.
- Direct support from Research Experts in:
  - Manufacturing and regulation
  - Trial design/IMPD preparation
  - Regenerative medicine/ ATMP
  - Medical product development and regulations for medical device commercialisation and compliance/manufacturing ISO 13485

\* Eligibility criteria apply

Any questions?



And now  
Pitches



UNIVERSITY OF  
BIRMINGHAM

BIRMINGHAM  
BUSINESS  
SCHOOL



‘Triple-crown’ accredited

# MBA Developing Leadership Practice 2017-2018

Sandy Purewal, Skills Development Consultant, Careers in Business  
Email: [s.purewal@bham.ac.uk](mailto:s.purewal@bham.ac.uk)

# The Programme

4-5 MBA's – consultants for a succinct project

8 Wednesday afternoons – approx. 100 hours

Meet your consultants 4 times

Final presentation and report – 21st March

Apply by 8<sup>th</sup> December 2017



# To apply

Email Sandy Purewal

[s.purewal@bham.ac.uk](mailto:s.purewal@bham.ac.uk)

Deadline for application : 8<sup>th</sup> December 2017

Next...

# Centre for Responsible Business

*Treasure, the Key and a Refreshing  
Pint*

Dr Yan Huo

y.hao.1@bham.ac.uk



# Lloyds Banking Group Centre for Responsible Business

## Birmingham Business School

- Lloyds Banking Group Centre for Responsible Business is a unique opportunity for the University of Birmingham to work with a leading financial institution – and with other businesses, academic institutions, NGOs, policy makers and civic society - at the frontier of intellectual development in responsible business and education.
- We're building a vibrant cross-cutting community of scholars, exploring how all businesses can be 'rewired responsibly', to add greater value to society, to inform, shape and energise the Responsible Business Revolution and to underpin Lloyds Banking Group's pioneering initiative, 'Helping Britain Prosper.'
- Our vision is one where the transfer of knowledge and technology - generated from our research into the economy, environment and society - is an embedded and natural component of our activity, as important and relevant as the knowledge generation itself. We support knowledge transfer as a broad spectrum of activity - including dissemination to our peers, engagement of the public, support to government and industry, and commercialisation of our intellectual property.
- Contact: Professor Ian Thomson, Centre Director [i.thomson@bham.ac.uk](mailto:i.thomson@bham.ac.uk)





U

**Thank you to our  
speakers and for  
your attention**

B

 Business with  
Birmingham

 EPSRC

Pioneering research  
and skills

UNIVERSITY OF  
BIRMINGHAM

# 2018 Business Club Events

## Upcoming Breakfast Briefings:

**8 February 2018**

**Know your business, grow your business**

*This Breakfast Briefing, will provide businesses and academics with the opportunity to discuss new collaborative R&D funding avenues as well as the regional and national opportunities that are available and the support that the University of Birmingham can provide in accessing funding.*