



ENGINEERING FOR LIFE
Enhancing people's lives

BTG Annual Meeting

York

25th Jan 2011

Chris Care & Nicola Woodroofe

Sheffield Hallam University

Aim

To create multidisciplinary teams to find pioneering ways to enhance people's lives.

Engineering for Life

EPSRC Funded:

Bridging the Gap - Promoting interdisciplinary research

Feasibility Account - Supporting highly speculative cross-disciplinary research

3 year project with total value of £1M

Start Date: October 2009

Investigators:

Chris Care:

Materials and Engineering Research Institute (MERI)

Paul Chamberlain:

Art and Design Research Centre (ADRC)

Steve Haake:

Centre for Sport and Exercise Science (CSER)

Nicola Woodroffe:

Biomedical Research Centre (BMRC)

Simeon Yates:

Communication and Computing Research Centre (CCRC)

Themes

- Rehabilitation and assisted living
- Sport, physical activity and medicine
- Sustainability

Launch Event



Guest speaker
Professor Peter Lansley

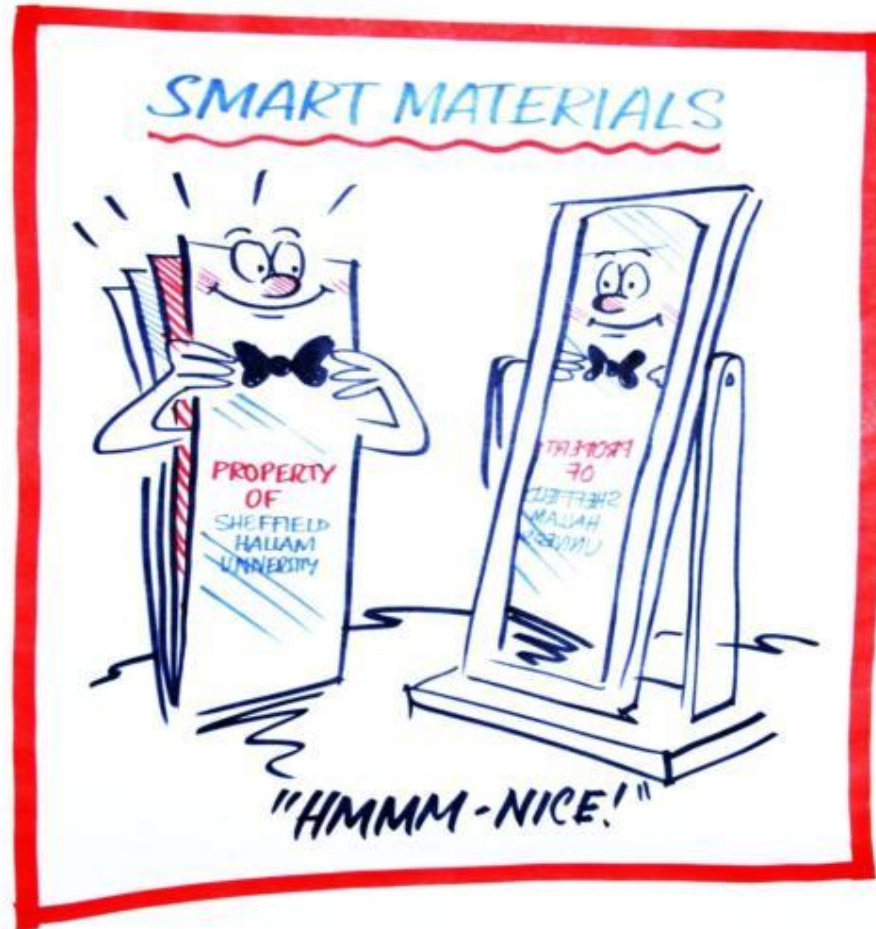
Director of Strategic Promotion of
Ageing Research Capacity (SPARC)

Ideas Generator



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Joints for Life - BMRC/MERI



Arty Sciency Sporty Art - ADRC/CSES



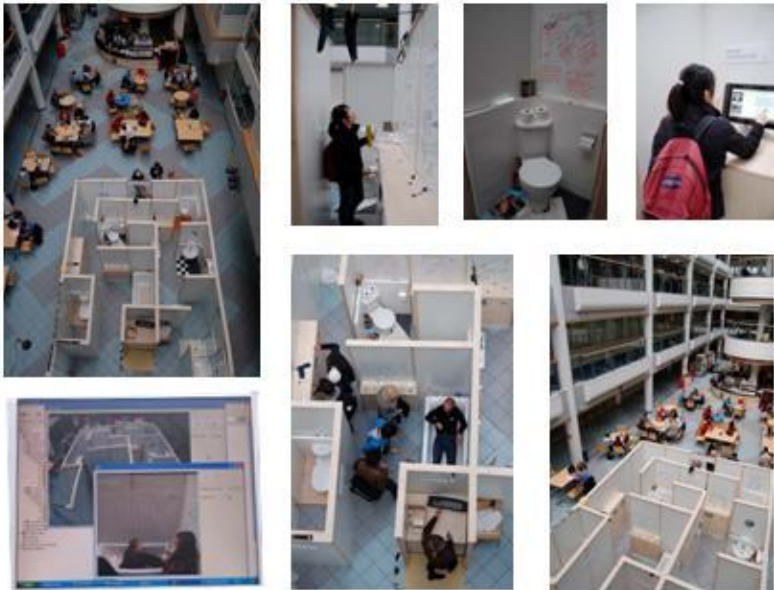
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Sustainability Jumpstart Event

**Tuesday 8 February 2011 Evening &
Wednesday 9 February 2011 Day**

The Millennium Galleries, Arundel
Gate

Field Laboratory

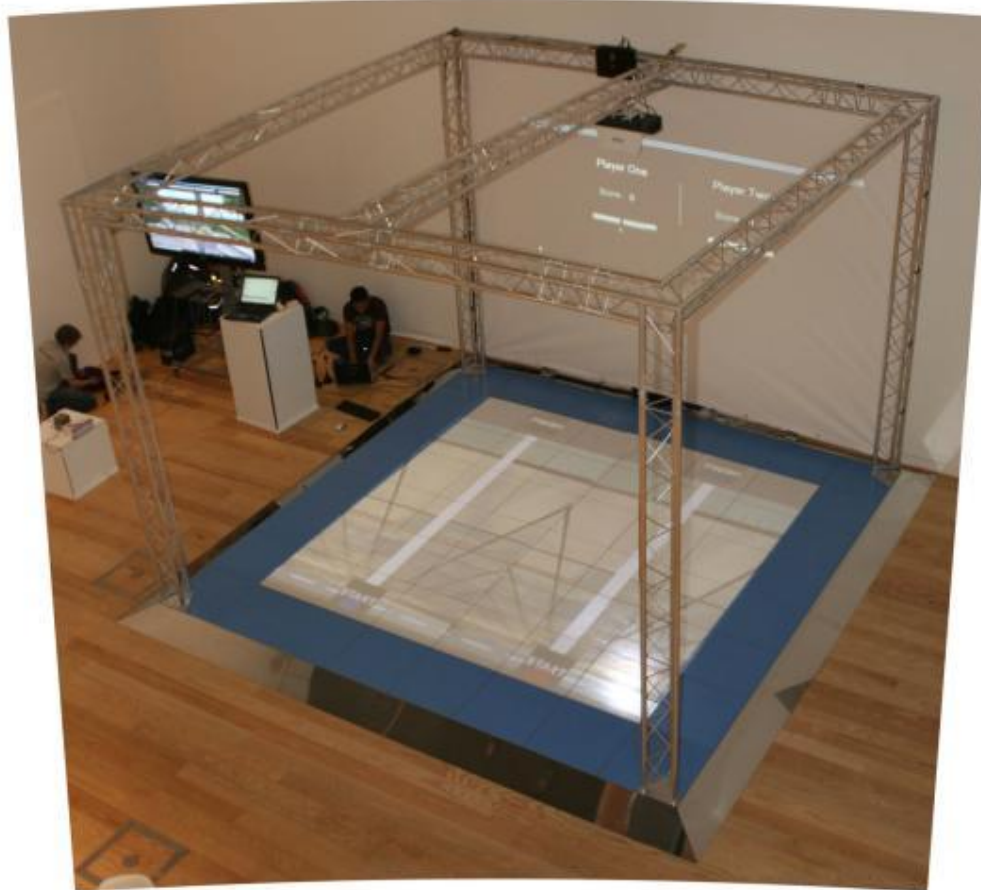


Field Laboratories

- Lab for Living
 - bathrooms
- Smart floor (also at Weston Park Museum, Sheffield)
- Paddling the dragon (Winter Gardens Sheffield)



Paddling the dragon - CHSCR/ADRC/CSES



Smart floor

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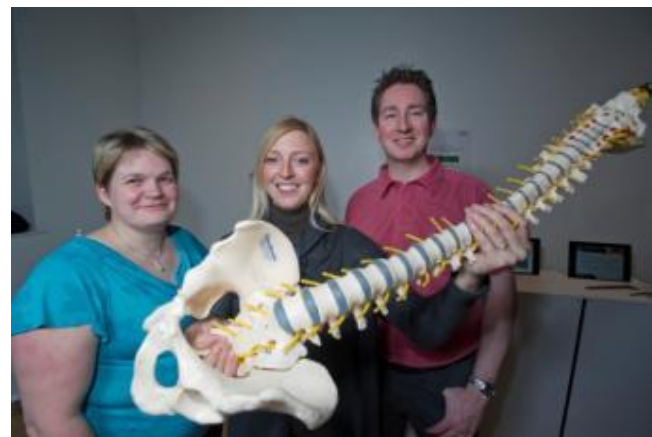
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Research Café



Annual Conference



Feasibility Account

EPSRC Funded:

Feasibility Account - Supporting highly speculative cross-disciplinary research

18 Month project with value of £250k

Start Date: November 2010

The Feasibility Account will support the most exciting and innovative projects from a pipeline of multidisciplinary projects developed through Engineering for Life.

Feasibility Account: Evaluation

Stage 1: Quality of the project

Projects will be assessed against the following criteria:

- Inter-disciplinarity.
- Innovation and originality.
- Quality of proposed research.
- The need for the technology.
- Potential impact.
- Clear outcomes.
- The potential to attract external support.
- Cost effectiveness.

The most promising projects from stage 1 are allowed to proceed to stage 2.

Feasibility Account: Evaluation

Stage 2: De-risking the investment

The purpose of the second stage-gate is to undertake a "forward look" to

- (i) Assess the commercial feasibility: External consultant
- (ii) Identify the key technical barriers: Independent academic
- (iii) Gain input from the end-user community: End-user representative

The reports from these assessments, together with information from the first stage, will form the basis of the final funding decisions.

Feasibility Account: Potential Projects

- ❖ Hydro-Delivery for the Back
- ❖ *In vivo* validation of novel antibiotic coated orthopaedic implants
- ❖ Visualising the interaction of proteins in biological membranes for diagnosis of diseases
- ❖ Breast Cancer treatment
- ❖ Intelligent mobile intermittent compression cuff – proof of concept
- ❖ Arty Sciencey Sporty Art : The Bigger Picture
- ❖ Improving Materials Properties using Modified Flax and Innovative Design
- ❖ Sensory Compensation - Visual Aid Product Trials

Types of event at SHU BTG

- Sandpits
- Research cafes
- Field laboratories
- Annual conference

Sandpits

- Ideas generator January 2010
 - facilitated by Creative Exchange
- Sandpit June 2010
 - facilitated by Leftluggage



Sandpit format

- An evening session with dinner + guest speaker
- One day session with various tasks to engage participants and promote interdisciplinary teams around a theme
 - rehabilitation and assisted living
 - sport, exercise and medicine
- After the event, 2 week time period for teams to submit ideas to panel for funding consideration

Learning points

- Venue and attendance
- Continuity within the session
- Newly generated ideas vs preconceived ideas
- Size of teams formed
- Facilitators and activities that work
- Evening external speaker



Next sandpit event

- Jumpstart - new facilitator - KnowInnovation
- Theme sustainability
- Millennium Galleries 7th and 8th February
- Learning from previous two events will be applied to final event



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Projects

Seed corn funding

Rehabilitation and assisted living

- Joints for Life
- Touching Light and Seeing Sound: Supplementing Sensory Feedback
- Autism, Barriers to Social Engagement and Interventions
- Next Generation "SMART" Materials
- Engaging Coping Strategies for Enhanced use of Assistive Technology
- ArtHouse
- Second Lives for the Third Age

Seed corn funding

Sport, physical activity and medicine

- Visualising the Interaction of Proteins in Biological Membranes for Diagnosis of Diseases
- Support, Positioning and Organ Registration During Breast Cancer Radiation Therapy
- Arty Sciency Sporty Art
- Using Mobile Technology in Tackling Maternal Obesity
- CROWD (Controlled Release from Open Wound Dressings)
- Hydro-Delivery for the Back

Projects from start to finish

ideas
generator

mentorship

review

award

mentorship

Summary of research centre involvement in seed corn funded projects

	Project lead	Contributors
ADRC	4	10
BMRC	4	5
CCRC	0	6
CHSCR	2	5
CSES	3	5
MERI	1	14
HWB		5

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technology	design	health
Social studies	engineering	psychology
materials	communication	medical

social	engineering				
health	engineering	psychology			technology
		design			
materials					

Research cafes

- 8 held so far, monthly basis
- Around 200 people in total attended these events usually around 25 per event
- Many repeat attenders, some RCs are less well represented
- Initial venue at SHU
- Showroom



Research cafes - topics covered

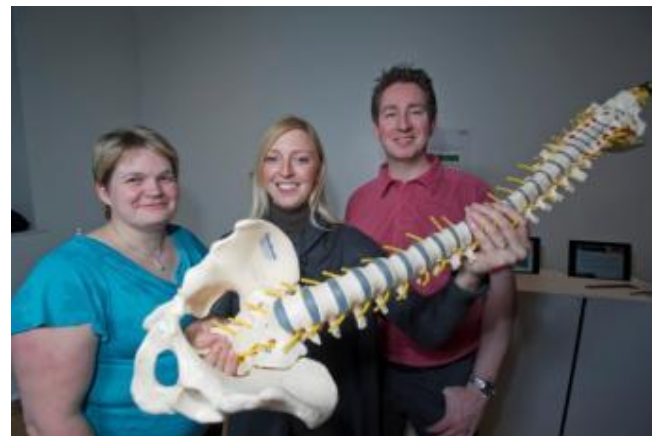
- Initial cafes included external speakers from other universities working on interdisciplinary research projects
- Speakers from other BTG projects
- last one covered two of seed corn funded projects from SHU

Learning points:

- Speakers from more than one discipline to increase attendance
- Promote student (MSc/PhD) attendance
- Have some audience participation/interaction
- Shorter talks - more discussion time
- Bimonthly in future
- Venue



Annual Conference



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- 7 speakers (2 external from KCL BTG)
- 60 delegates
- Approx 300 visits to Exhibition
- Teachers TV programme
- Engineer

Long term aims of BTG Engineering for Life at SHU

- Sustainable network
- Develop methods to overcome barriers to interdisciplinary working based on reflective research
- Lever external funding streams
- Legacy – cultural change