

**Brain Injury  
MedTech Co-operative**

  
**National Institute for  
Health Research**

# **Neurorehabilitation**

## **MIC Theme 9**

***Professor Valerie Pomeroy,  
Dr Michael Grey***

# Background

## Neurorehabilitation

- Neurorehabilitation interventions enhance ability to function again after brain injury
- But, research-identified benefits are only partly translated into clinical practice
- Most based in their own homes e.g.: limited space for special equipment, need to use equipment when therapist not there
- Progress is promised by harnessing rehabilitation technology for enabling provision of evidenced-based interventions
- Next generation of technology needs to be designed iteratively with: people with brain injury; their informal carers: and their therapists



**MoveTec**

# Team

## Neurorehabilitation



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**Prof Duncan Turner**, University of East London – expertise in clinical trials of robotics & measurement of the neural correlates of impairment and disability.

**Prof Nick Ward**, University College London – provision of expertise in cutting-edge brain imaging techniques relevant to progress effective application of neurorehabilitation and clinical provision of the first UK dedicated upper limb rehabilitation programme.

**Dr Michael Grey**, University of East Anglia – expertise in neurophysiology including non-invasive brain stimulation techniques

**Dr Fergus Gracey**, University of East Anglia – expertise in neuropsychological rehabilitation after brain injury.

# ***Sub Themes***

## **Neurorehabilitation**



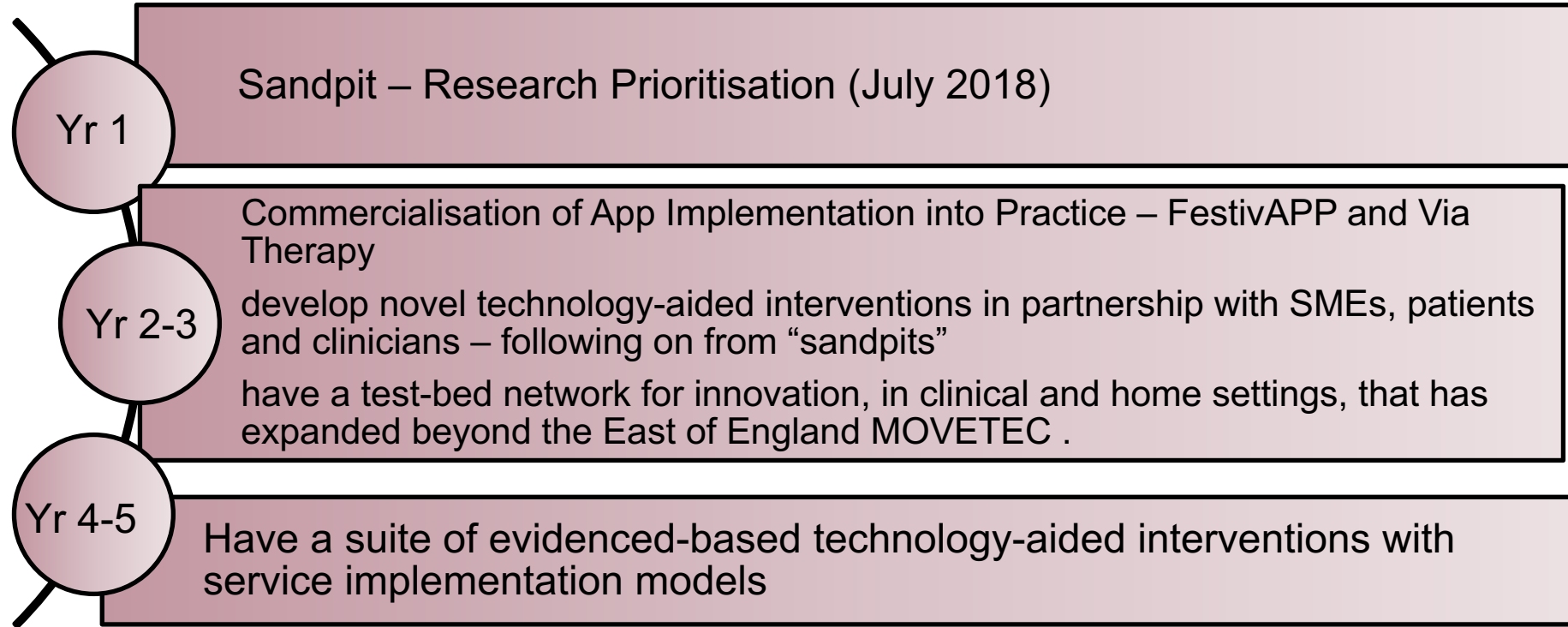
1. Technology-aided rehabilitation interventions
2. Predictive markers and measures of response to neurorehabilitation
3. Implementation of rehabilitation technology into care pathway

# Strategic Deliverables

## Neurorehabilitation

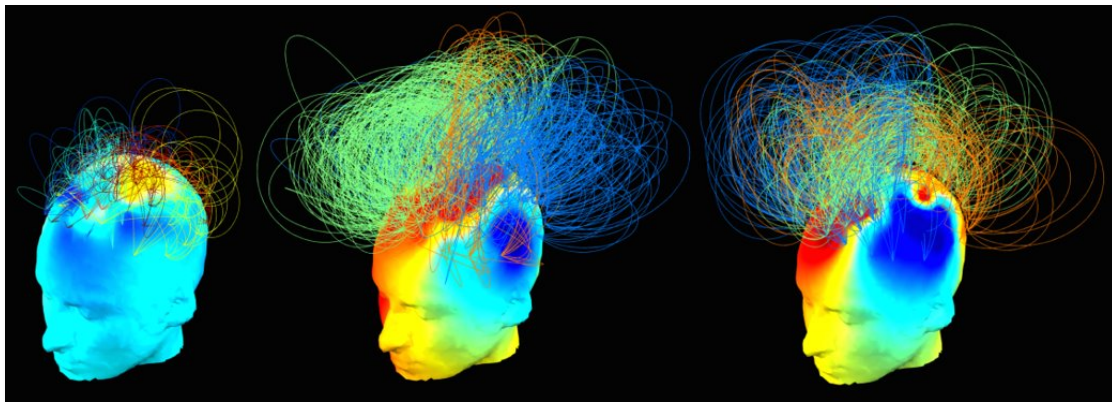


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# Example: EEG

## Neurorehabilitation



VS Patient



Healthy adults

VS Patient



MCS

Healthy adult



VS

**Brain network visualisation and  
assessment  
at the bedside in disorders of  
consciousness**

*Dr Srivas Chennu*

# Example: Virtual Reality

## Neurorehabilitation



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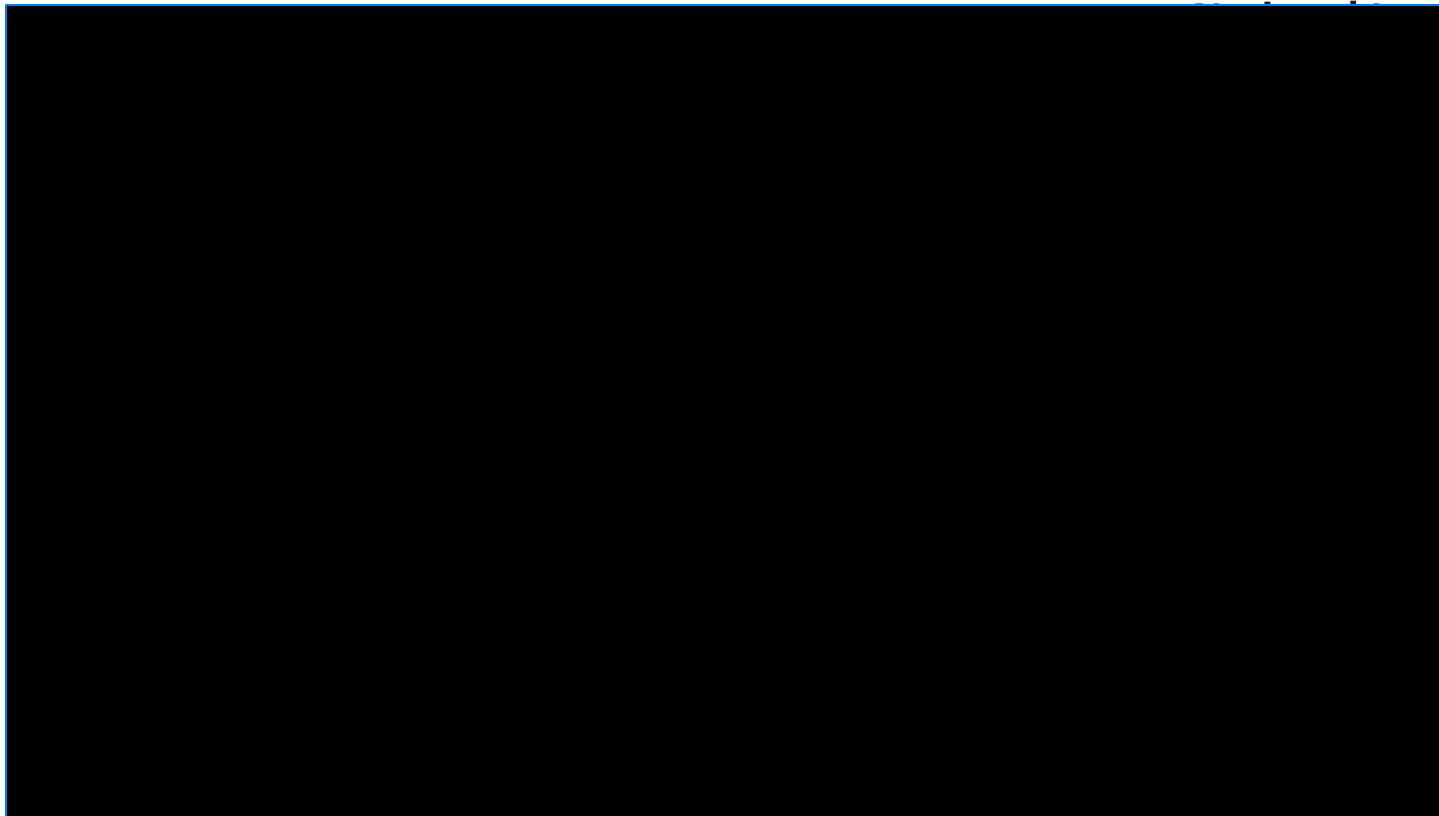
### Virtual Reality in Sports Concussion

*Dr Michael Grey, University of East Anglia*

[www.abira.ac.uk](http://www.abira.ac.uk)



<http://www.virtualrehab.info>





# Example: Viatherapy

## Neurorehabilitation



## FIND

Identify areas of unmet need throughout the brain injury pathway that might be amenable to a technology-based innovation.

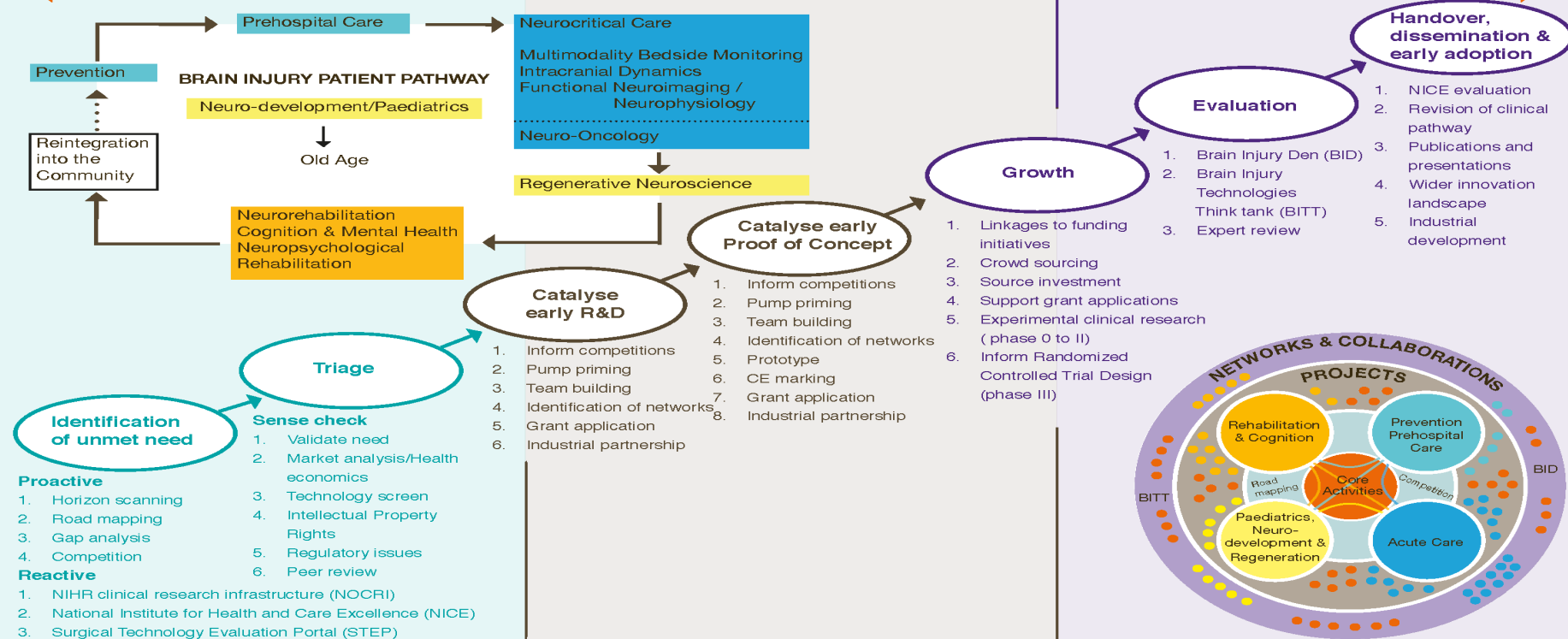
## FACILITATE

Promote the generation of innovative solutions through the facilitation of interdisciplinary communication and collaboration between the NHS, academia, industry and public organisations.

## FOSTER

Support the translational pathway of viable solutions from initial concept to successful market adoption and sustainable clinical impact.

**CORE ACTIVITIES:** Patient & Public Involvement, MedTech Regulation & Developmental Support, Clinical Informatics, Health Economics





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# **The Next Generation**

## ***Launch Event***

**Wednesday 25 April 2018: Homerton College, CB2**