SBRI HEALTHCARE

SBRI Healthcare

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NHS England

Agenda

10.00	**Chris Hart** - Welcome and introduction to AHSNs **Karen Livingstone** – National Director SBRI Healthcare - How SBRI works & what it has delivered?
10.30	A focus on Mental Health: **Dr Jen Martin**, Programme Manager, NIHR MindTech Healthcare Technology Cooperative
11.00	A focus on Surgery: **Dr Areena Rouchelle D'souza**, Orthopaedic surgeon and Senior Fellow The Centre for Spinal Studies and Surgery (CSSS), Nottingham University Hospitals NHS Trust
11.30	**Karen Livingstone** how to make a successful SBRI application
11.50	Q&A and networking
12.30	Close

Academic Health Science Networks

Chris Hart

Commercial Director

East Midlands AHSN

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The AHSN Network

15 Academic Health Science Networks (AHSNs) across England.

Find out more about AHSNs, and how to contact your local network at www.ahsnnetwork.com

Academic Health Science Networks

through adoption and spread of proven innovations

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NHS England

How England's 15 AHSNs make a difference

- **We connect**: bringing together academics, NHS, researchers and industry to **accelerate innovation** and facilitate the **adoption and spread of proven ideas**
- **We are catalysts:** helping **facilitate change** across whole health and social care economies - with a focus on improving outcomes for patients
- **We create:** the **right environment** for relevant industries to work with the NHS and other parts of the healthcare sector

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NHS England

AHSNs impacts since 2013

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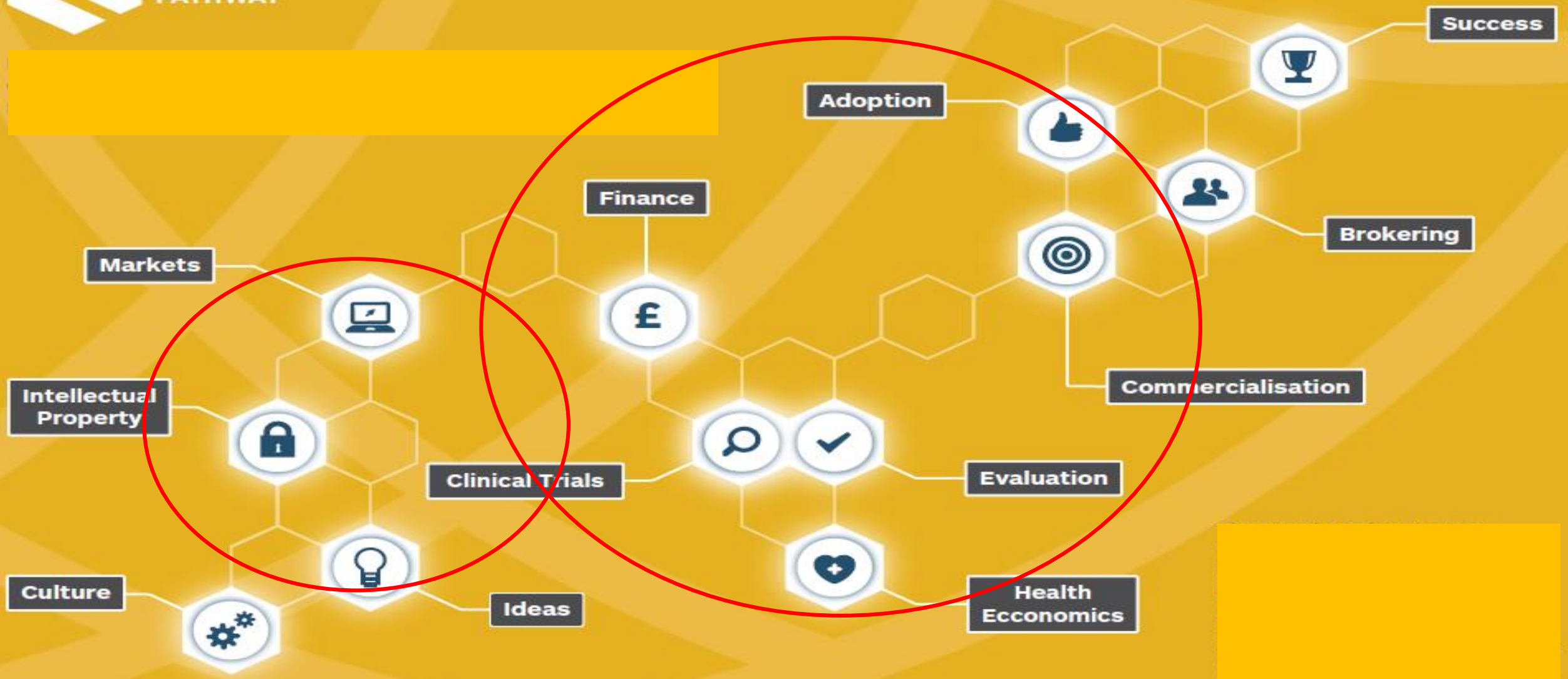
THE INNOVATION PATHWAY



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EMAHSN:
Transforming the health of East Midlands residents and stimulating wealth creation

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@EM_AHSN

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Karen Livingstone, National Director SBRI Healthcare

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SBRI Key features

SBRI is a pan-government, structured process enabling the Public Sector to engage with innovative suppliers:

✓Helping the Public Sector address challenges
- Using innovation to achieve a step change

✓Accelerating technology commercialisation
- Providing a route to market

✓Support and the development of Innovative companies
- Providing a lead customer/R&D partner
- Providing funding and credibility for fund raising

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SBRI Key features

- ✓ 100% funded R&D
- ✓ Operate under procurement rules rather than state aid rules
- ✓ UK implementation of EU Pre-Commercial Procurement
- ✓ Deliverable based rather than hours worked or costs incurred

- Contract with Prime Supplier
  - ✓ Who may choose to sub contract but remains accountable
- IP rests with Supplier
  - ✓ Certain usage rights with Public Sector – Companies encouraged to exploit IP
- Light touch Reporting & payments quarterly & up front

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SBRI Government challenges. Ideas from business. Innovative solutions.

Things to Note

- Any size of business is eligible
- Other organisations are eligible as long as the route to market is demonstrated
- All contract values quoted **INCLUDE** VAT
- Applications assessed on Fair Market Value
- Contract terms are non-negotiable
- Single applicant (partners shown as sub contractors)
- Applicants must fully complete the application form

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SBRI Government challenges. Ideas from business. Innovative solutions.

Eligible costs (all to include VAT)

- Labour costs broken down by individual
- Material Costs (inc consumables specific to the project)
- Capital Equipment Costs
- Sub-contract costs
- Travel and subsistence
- Other costs specifically attributed to the project
- Indirect Costs:
  - General office and basic laboratory consumables
  - Library services/learning resources
  - Typing/secretarial
  - Finance, personnel, public relations and departmental services
  - Central and distributed computing
  - Cost of capital employed
  - Overheads

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SBRI Government challenges. Ideas from business. Innovative solutions.

www.innovateuk.org/sbri

website contains details of all SBRI competitions

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SBRI Healthcare

Launch Autumn Competition 2017

Mental Health

Surgery

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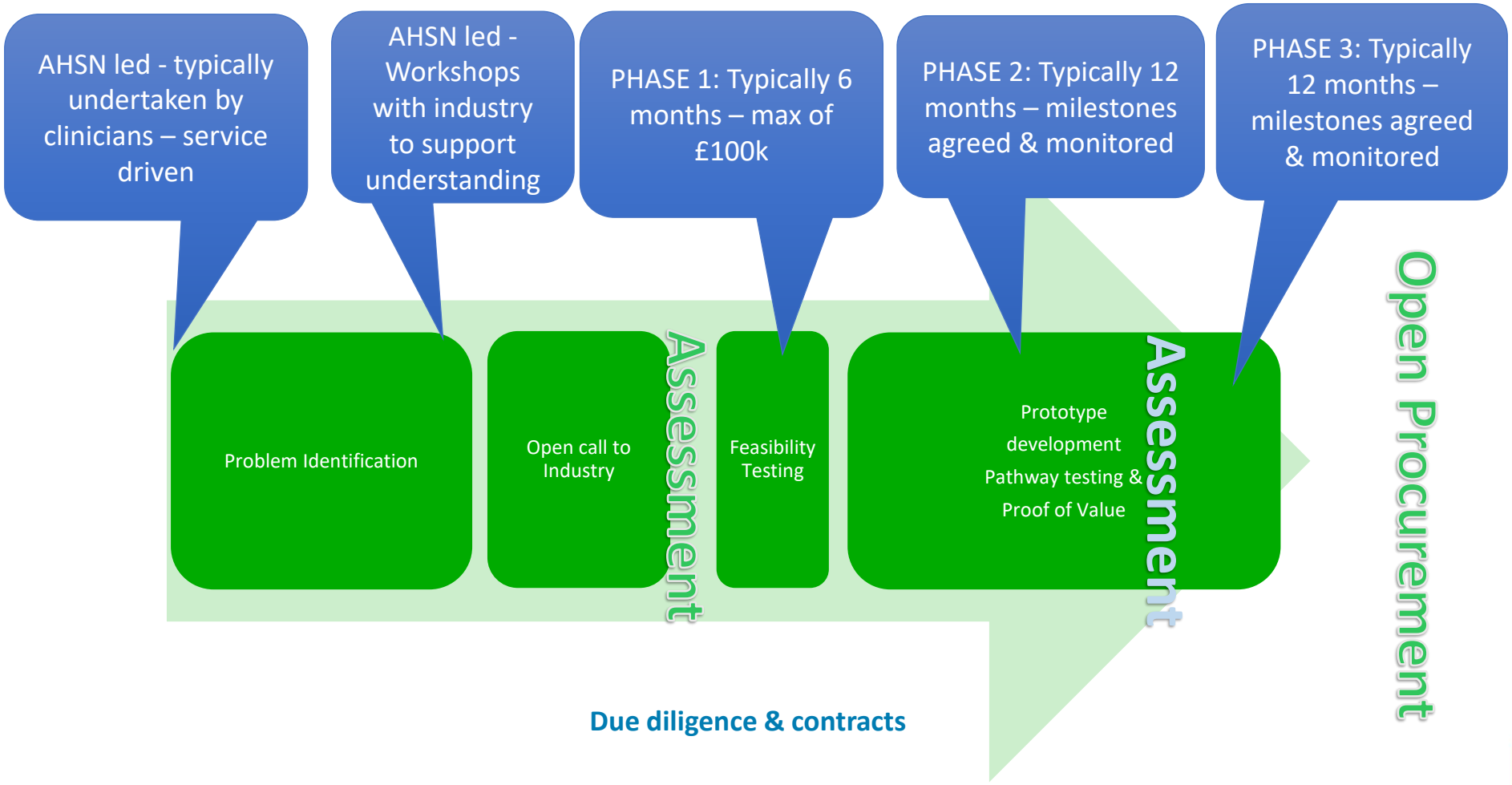
SBRI Process



TheAHSNNetwork

NHS England

New Competition October 2017

Competition launch:	18th October 2017
Closing Date:	**Noon 29th November**
Briefing Events:	**Bristol 24th October**
	Nottingham 31st October
	Liverpool 3rd November
Assessments:	December/January 2017/18
Interview panels:	January 2018
Contracts awarded:	March 2018

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How do we add value?

OUR YEAR IN NUMBERS

£10.9m

39 Phase 1 contracts awarded with a total value of **£3.12m**

12 Phase 2 contracts awarded with a total value of **£7.75m**

8 new clinically-led competitions where NHS needs have been articulated for business to respond to

433

applications from industry assessed and supported or feedback given

FIVE YEARS OF DELIVERY

£69m

£69m total funds awarded

153 Phase 1

71 Phase 2

8 Phase 3

135

135 patents, copyrights, trademarks and scientific publications applied for or awarded

382 finalised agreements with UK and foreign companies

382

18

18 companies exporting their products to international markets

sbrihealthcare.co.uk

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Benefit for patients

- 704k patients impacted to date
- Potential to impact 59.5m
- Reduced harm evidenced.
- Reduced length of stay and no. of GP appointments
- Improved PROMs reporting – from <2% to >40%

"I'm no longer worried about losing my driving licence, no longer worried about losing my house or my job. My last eye check up at the hospital confirmed that for the first time in over two years, BOTH my retinas are stable once again…with no signs of any small bleeds at all"
(Polyphotnix patient)

Benefit for the NHS and wider health system

- £17.8m cash releasing savings secured to the NHS and social care to date
- Estimated cumulative future savings to the NHS expected to be of the order of £300- £440m in five years (2022), rising to between £1,100m - £1,800m in 10 years
- 135 IP applications: Five NICE approvals submitted
- 778 different NHS/care settings involved to date

Benefit for business and the economy

- £140m private investment secured by SBRI Healthcare backed companies
- 788 jobs created or safeguarded with £47m economic impact
- 50 products on the market and available to purchase – 18 companies are exporting & 3 have secured sales in excess of £500k
- Companies have been created and have only survived as a consequence of SBRI funding

HORIZON 2020
The EU Framework Programme for Research and Innovation

AHSN/SBRI companies

Scotland & N Ireland
Radisens, Edixomed,

NW Coast
Veraz, Cardiocity

North East & North Cumbria
Polyphotonix Ltd

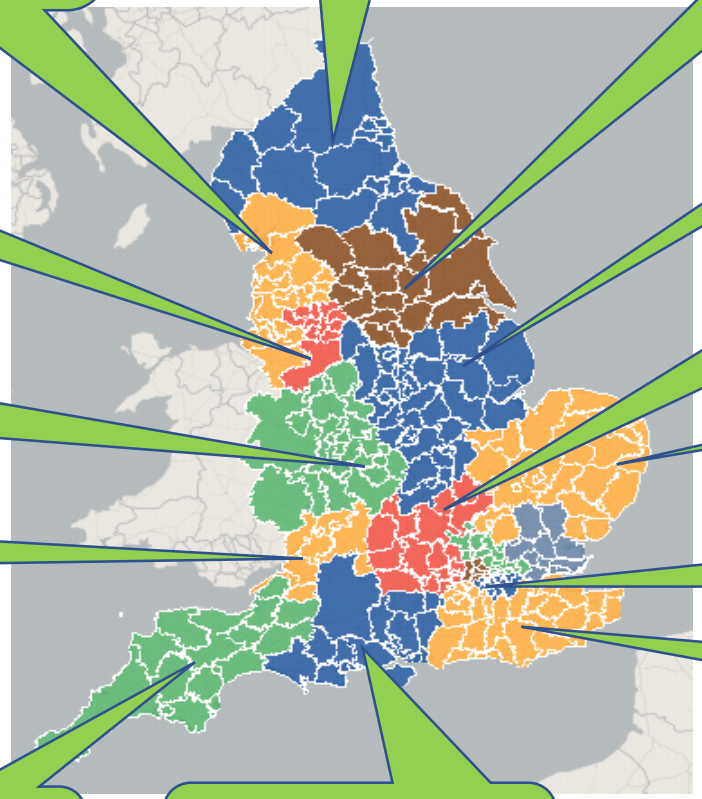
Yorks & Humber
Halliday James Ltd

East Midlands
Monica Healthcare Ltd, Astrimmune Ltd

Greater Manchester
- Sky Med, & Rapid Rhythm

West Midlands
SensST Systems, Just Checking Ltd

West of England
SentiProfiling, My mHealth, HandAxe CIC



Oxford -
Fuel 3D, Oxford Biosignals, Message Dynamics

Eastern -
Aseptika, Bespak, TwistDX

S.London, Imperial, UCLP
ABMS, Therakind, uMotif

Kent, Surrey & Sussex
Anaxsys, InMezzo

South West
Frazer Nash

Wessex
CreoMedical, Morgan Automation

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Launch Autumn Competition 2017

Chris Hart, Commercial Director,
East Midlands AHSN

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Mental Health

- The Five Year Forward View for Mental Health reports that mental health problems account for 25% of all ill health in the UK
- One in four adults will experience mental health problems each year
- Mental illness is the UK's single largest cause of disability.
- Mental health problems have an estimated economic and social cost of £105 billion a year – approximately the cost of the entire NHS.
- Nearly 1/3 of all people with a long-term physical health condition also have a mental health problem, typically depression or anxiety
- The effect of poor mental health on physical illnesses has been estimated to cost the NHS at least £8 billion a year.

Mental Health Themes

- Children and Young Peoples' Mental Health
- Depression, Self Harm and Suicide
- Operational Productivity and New Models of Care

Technology in Surgery

- Increasing pressure on the cost of delivering surgery and patient waiting times.
- In the last 10 years, the number of surgical admissions to secondary care increased by 27%, from 3.7 million in 2003/04 to 4.7 million in 2013/14 .
- There are over three thousand NHS operating theatres in England
  - 19% of which are dedicated day case theatres
  - Annual expenditure on surgery in the NHS has been estimated at £4.5 billion (2013).
- The 92% target for all patients to be seen within 18 weeks has not been met since February 2016.
- NHS Improvement today! Believes operating theatres could be saving 2 hours a today through increased efficiency

Technology in Surgery Themes

- Technologies to assist with surgical procedures

- Preoperative surgical simulation technologies

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Dr Jen Martin, Programme Manager, NIHR MindTech Healthcare Technology Cooperative

A focus on Mental Health

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NHS
National Institute for Health Research

Mental Health: the perfect clinical area for innovative technological solutions

Dr Jen Martin

MindTech Healthcare Technology Co-operative

www.mindtech.org.uk @NIHR_MindTech

MindTech

National Institute for Health Research

- Established in 2013. Funded till end of 2022
- Remit: to support the development of new technologies for MH
- Focusing on areas of high unmet clinical need
- Bringing together NHS clinicians, service users, academia & industry

Bradford: Wound Care

Leeds: Colorectal Therapies

Sheffield: Devices for Dignity

Nottingham MindTech: Mental Health & Dementia

Cambridge: Brain Injury

Bart's: Gastrointestinal Disease

Guy's: Cardiovascular Disease

Birmingham: Trauma Management

Why Mental Health?

- Mental health problems affect 1 in 4 people
- Huge economic cost to UK - £70bn per year[1]
- Greatest cause of health related disability in UK
- 28% of the national disease burden
- 70 million working days lost each year
- High unmet need with little technological innovation
- Subjective clinical assessment dominates practice
- Lack of historical engagement with SMEs and technology sector

[1] OECD 2014

Treatment Gaps in Mental Health

National Institute for Health Research

- 75% of people with mental illness fail to receive any treatment at all
- 60% of people referred to IAPT services receive no treatment
- 10% of British 5-15 year olds have a diagnosable mental health condition but only 25% of these receive treatment
- 75%+ of adults who access mental health services had a diagnosable disorder in prior to the age of 18

Technological Innovation in Mental Health: Why now?

National Institute for Health Research

- £30bn NHS funding gap by 2020 requires transformational change
- Treatment gaps require disruptive technological solutions
- Demand for flexible, person-centred care: precision medicine and self-management
- Harness advances in computer science and bio-engineering, AI and machine learning
- Rapid growth in smart technologies and ubiquitous computing
- The UK is (somewhat) ready for digital mental health

NHS Transformation Agenda for technology and mental health

National Institute for Health Research

"Digital tools & services provide more flexibility, choice and control"

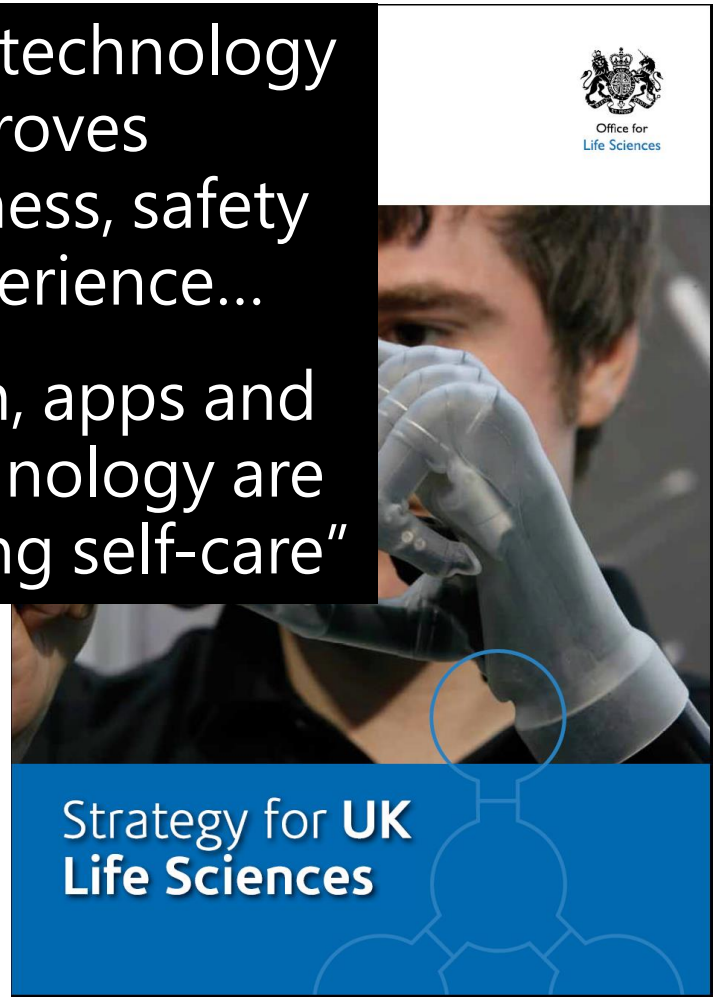
"Technology can support innovation, increase choice and make services more accessible while being more cost effective"

The UK plc Growth Agenda

NHS National Institute for Health Research

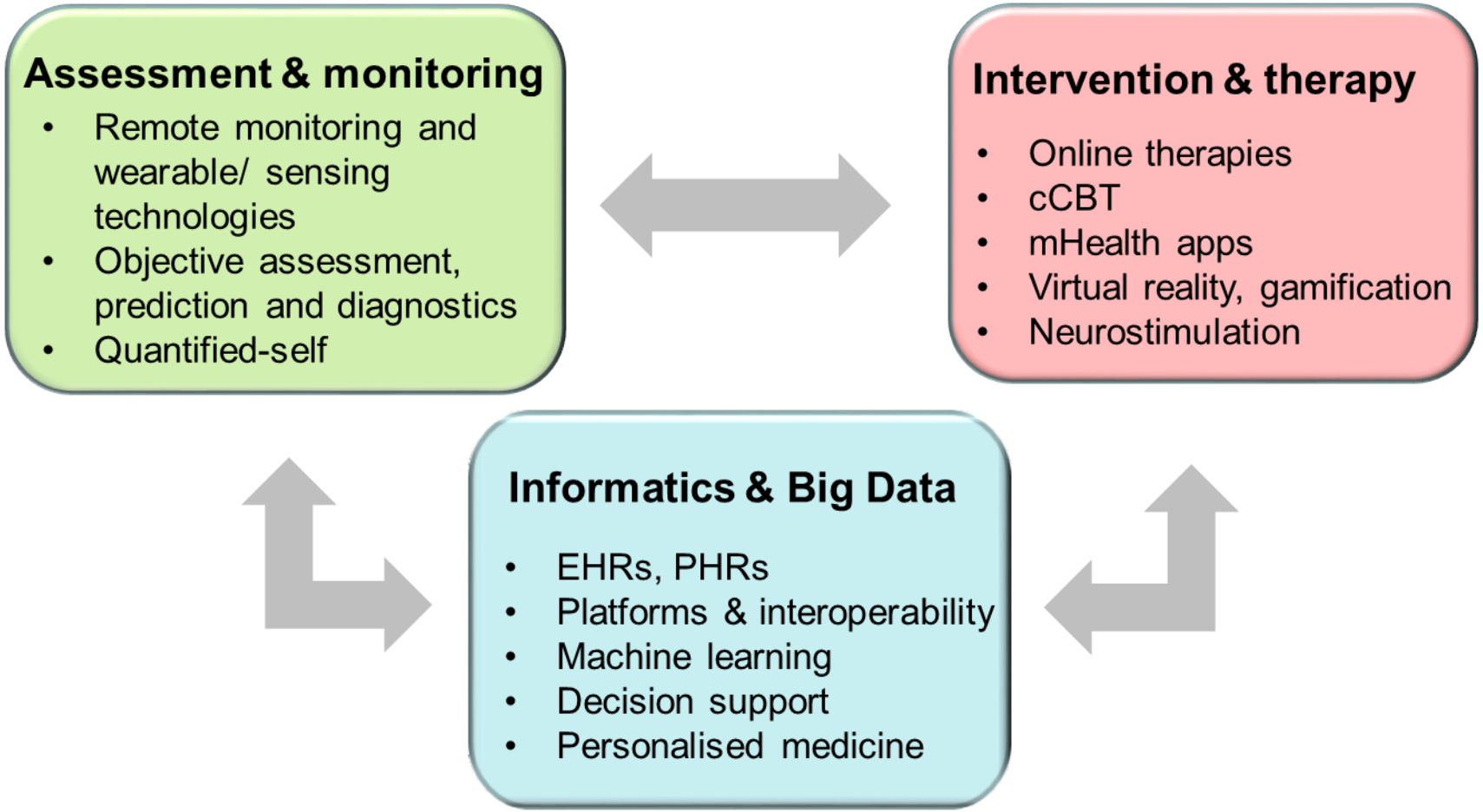
"Data and technology improves effectiveness, safety and experience…

Telehealth, apps and other technology are empowering self-care"



Mental Health Technology Landscape

NHS National Institute for Health Research



What technologies are the NHS interested in?

NHS National Institute for Health Research

Simple "Supportive" Tools

e.g. trackers
- Mood
- Alcohol
- Activity
- Diet

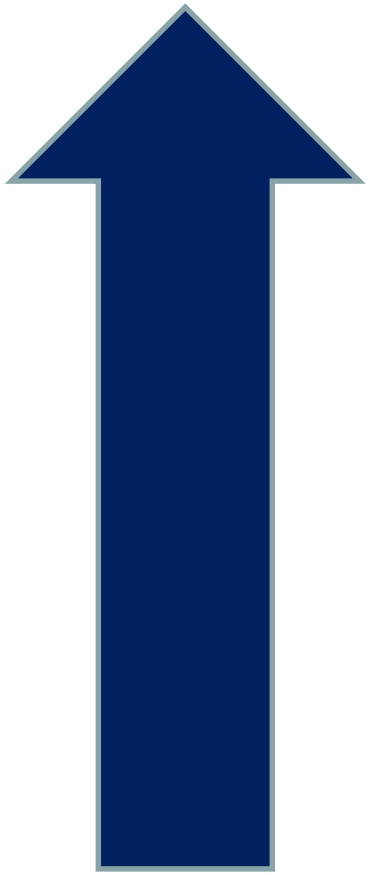
NHS is unlikely to look at these:
- Too many
- Low risk
- Low cost (or free)
- Limited impact on NHS

Will likely just direct to well-established, freely-available apps or develop their own

Transformative Services and Products

Technologies that deliver tangible benefits to patients or the NHS:
- Improvements in health outcomes
- Support service re-design (in reality reduce costs)
- Improve access – particularly hard-to-reach groups
- Reduce burden on NHS:
  - Treatment Costs
  - Waiting lists
  - GP appointments
  - A&E attendance
  - Inpatient admissions

And what outcomes?



Improved patient outcomes + NHS Savings

Improved patient outcomes

NHS Savings (N.B. for which part of system?)

Improves self-management (e.g. reduces GP appts)

Addresses local or national NHS priorities

“Positively influences factors important to users”

Some Examples

Digitally-enabled Therapy

NHS National Institute for Health Research

- Has the potential to increase access and deliver evidence-based interventions at scale:
  - Can address the constraints of static/reduced budgets and lack of therapists
  - May also address practical barriers: travel, time, convenience, choice.
- Evidence suggests blended approaches are more effective than computerised self-guided interventions
- Apps have potential, but field still in its infancy:
  - What's the evidence that they're safe/effective?
  - What's their role in services?
  - Uncertain business case (will the NHS prescribe?)

Sleepio

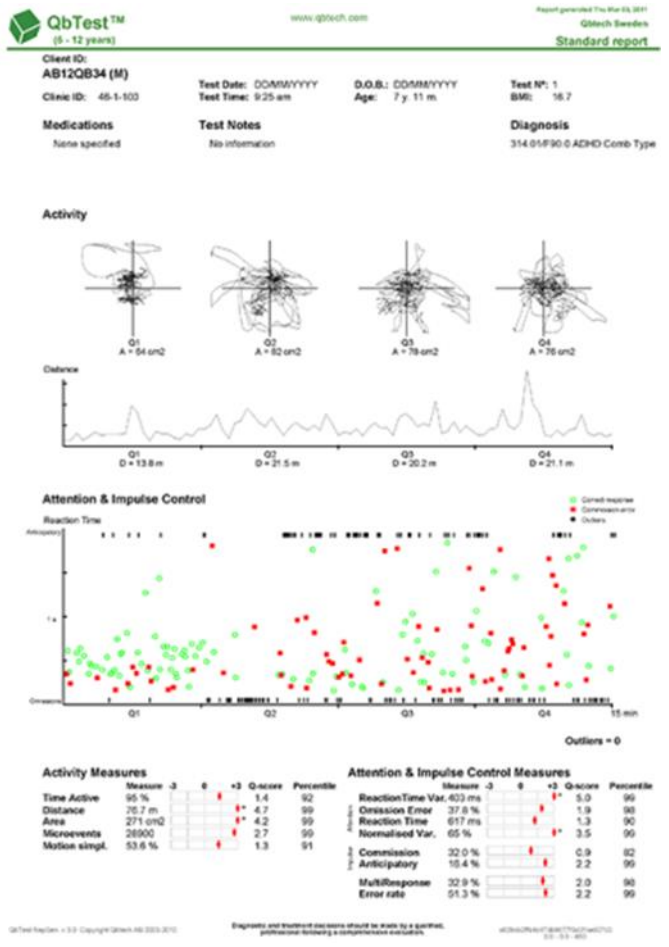
Big White Wall™

HEADSPACE
TREAT YOUR HEAD RIGHT

NHS choices
health apps library

Bringing more Objectivity to Assessment & Monitoring, e.g. ADHD

National Institute for Health Research



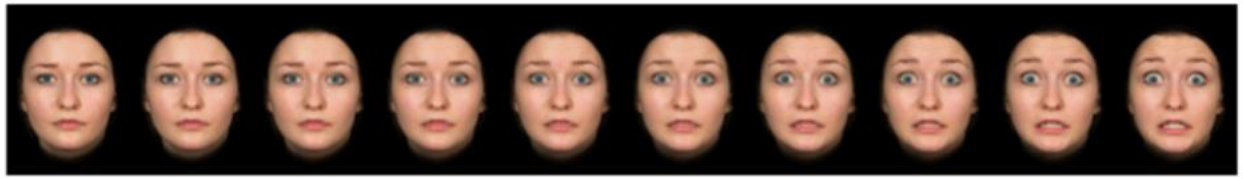
- Qb Test: Computerised objective assessment of attention and activity
- AQUA Trial: 1st worldwide diagnostic RCT for ADHD - 40% faster diagnosis
- QbTest now has FDA approval
- EM Support with Funding/Evaluation/Adoption
  - CLAHRC EM
  - MindTech
  - EMAHSN

Improving treatment: prediction response to antidepressants

NHS National Institute for Health Research

- Received Phase 1 & 2 SBRI funding in 2013 MH competition
- European clinical trial currently underway

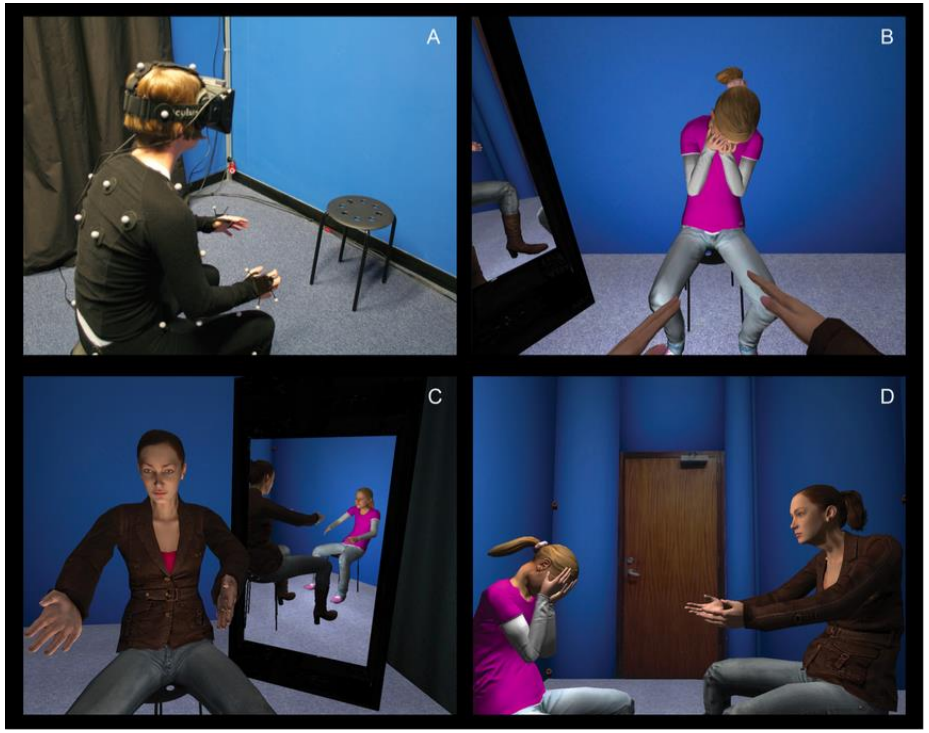
- The modulation of emotional processing is a very early effect of antidepressant drugs and occurs many weeks before changes in mood become apparent



The Facial Expression Recognition Task is sensitive to enhanced recognition of negative emotional faces and blunted recognition of positive emotional faces in depressed patients and modulation by antidepressant drugs

P1vital®

New non-pharmacological treatments: Games, VR, AI & Avatars



The Challenge Areas

National Institute for Health Research

Children & Young People

National Institute for Health Research

What if we could use technology to support and alleviate pressure on Children and Young People's Mental Health services?

What if we could identify mental health issues in children and young people earlier?

What if we could use technology to help support children and young people with mental health issues?

What if the triage and assessement of mental health conditions could be automated, to ensure children and young people are diagnosed as soon as possible?

What if we could diagnose low level anxiety earlier and in an array of settings, from education to the community?

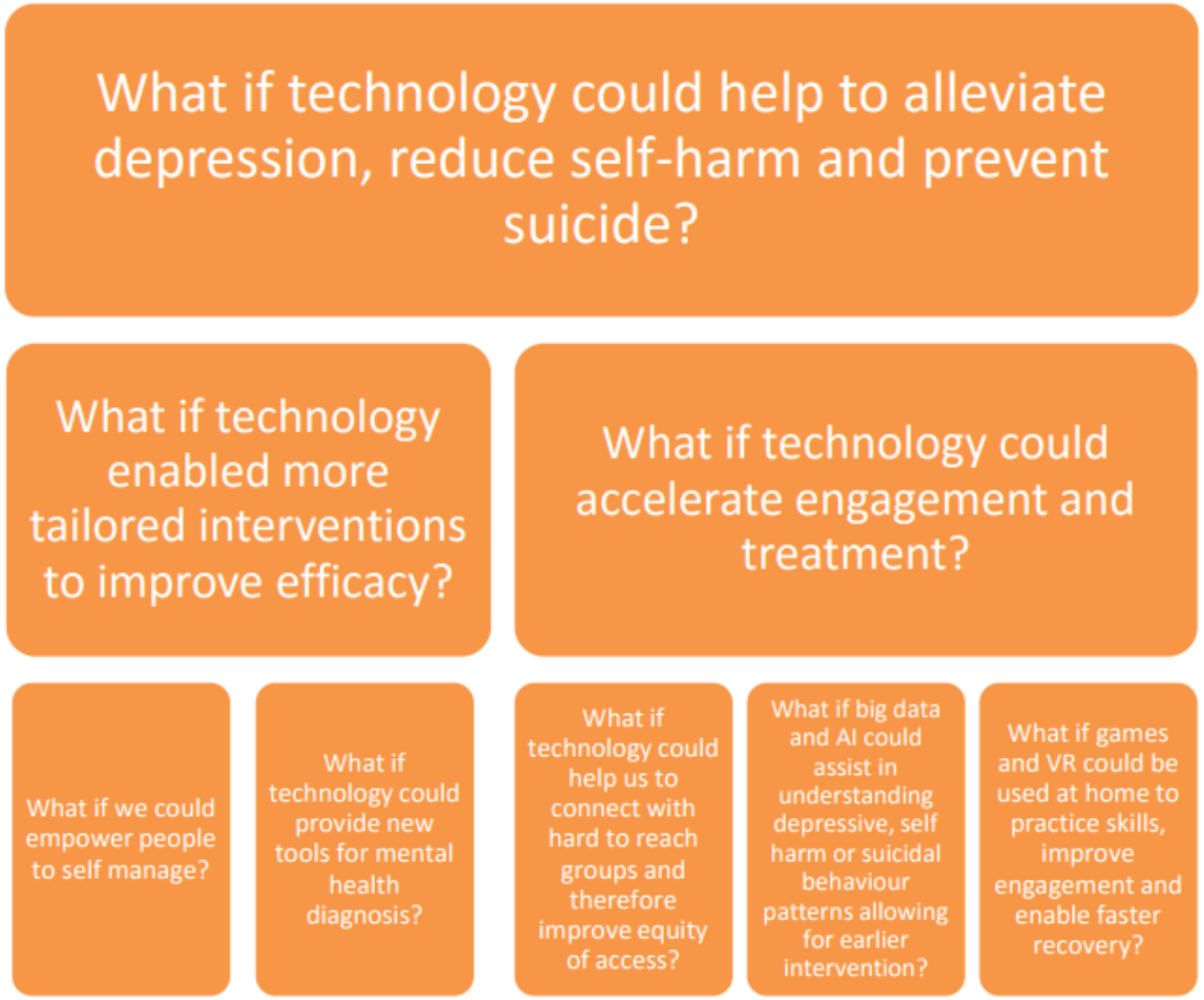
What if gamification and virtual reality could be used to support the mental wellbeing of our children and young people?

What if we could provide our young people with effective signposting to products and services that could help them?

What if we could monitor young people in real time using technology and provide interventions through technology?

What if we could provide children with cognitive and psychological support earlier and in settings that aren't always the NHS?

Depression, self-harm & suicide



New Models of Care

NHS National Institute for Health Research

What if technology provided better data integration between different mental health service providers?

What if there were a technological innovation that enabled integration between a national database and local delivery systems in the area of mental health and wellbeing?

What if we could automate decisions about standardised components of care packages?
e.g. AI/machine learning

What if case managers could be released from manual reporting and data entry, allowing them to refocus on real case management?

What if technology could enable improved clinical and case management oversight (across primary and secondary care) to support better decisions about a patient in specialist care?

What if there was an innovation that ensured data collection was specific, accurate, consistently applied and timely? Plus easy to share across the primary / secondary divide

Key challenges for applicants

NHS National Institute for Health Research

- What unmet need/priority does the technology address?
  - Involve clinicians, service users, commissioners (& MindTech)
- How will the technology fit into NHS services?
  - Mapping and understanding care pathways
  - Interoperability, data sharing, security and privacy
  - What additional burden does it place on services or staff
- What's the commissioning case/ value proposition?
  - Know what the NHS will pay for and what it won't
  - Understand priorities of commissioners & providers

MindTech Symposium 2017

National Institute for Health Research

Digital Technology in Practice

Thursday 7th December 2016

Royal College of Physicians, London

Speakers include:

- **Dr Louise Wood –** Department of Health
- **Alison Faulkner –** service user, researcher & activist
- **Dr James Woollard** – NHS England
- **Dr Sophie Bostock –** Sleepio

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www.mindtech.org.uk **@NIHR_MindTech**

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Dr Areena Rouchelle D'souza, Orthopaedic surgeon and Senior Fellow The Centre for Spinal Studies and Surgery (CSSS), Nottingham University Hospitals NHS Trust

A focus on Surgery

The AHSN Network

NHS England

Technology in Surgery

SBRI Healthcare NHS England competition for development contracts

October 2017

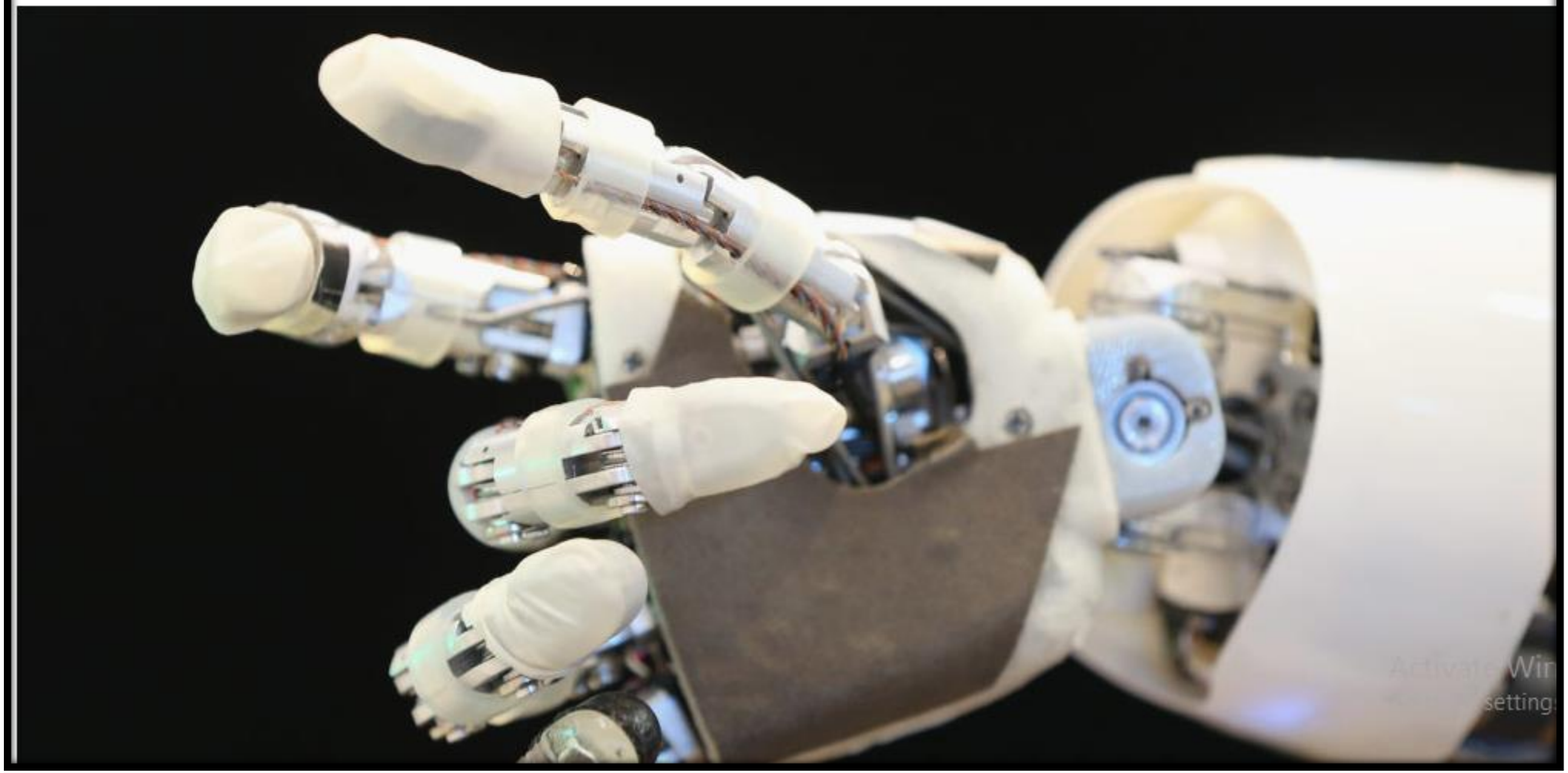
Dr. Areena D’souza
Orthopaedic surgeon and
Senior spinal fellow
Queens medical centre

Special thanks to Mr. Nicholas Brown

- No financial disclosures to make
- No affiliation with any of the companies I may portray in my slides

Artificial intelligence: coming soon to a hospital near you

By ROGER SMITH / APRIL 13, 2017



The Current Situation

- Royal College of surgeons data- ten year period, the number of surgical admissions to secondary care increased by 27%, from 3.7 million in 2003/04 to 4.7 million in 2013/14.

- NHS England, Supporting Facilities Data 2017- over three thousand NHS operating theatres in England, 19% dedicated day case theatres and annual expenditure on surgery in the NHS has been estimated at £4.5 billion (2013).

- The 92% target for all patients to be seen within 18 weeks has not been met since February 2016 - 39% increase in the total number of patients waiting over 18 weeks for planned treatment uptil February 2017.

- In 2014-15 there were 11,341,913 Finished Consultant Episodes (FCEs), 60.5% of which involved some form of procedure or intervention, with 95% of day case episodes involving a procedure or intervention .

Current costs

Standard, Coronary Artery Bypass Graft with Single Heart Valve Replacement or Repair, £16,431

Major General Abdominal Procedures, 19 years and over, £10,223

Major Small Intestine Procedures, 19 years and over, £9,287

Malignant Gastrointestinal Tract Disorders without Interventions £4,449

Hip Fracture with Single Intervention, £5,146

Appendicectomy Procedures, 19 years and over, £5,455

Source: NHS Improvement Annex A: The national prices and national tariff workbook 2018/19

Open letter to trainee members from the Royal College of Surgeons

16 Sep 2016

Over the summer, the immense task facing the NHS has become abundantly clear. The sorts of pressures we witness in winter months are now the norm. The health service is unable to triangulate the need to keep finances under control and meet the provision and standard of care we rightly expect for our patients. While we have yet to see a return to the intolerable surgical waiting times of the 1990s, the direction of travel seems clear.

Training is a particular issue in surgery. The GMC's annual trainee survey consistently finds that **junior surgeons in the early stages of their training are the least satisfied** of all the medical specialties with their training. It is a particular concern that **access to theatre time and the learning of craft skills has become severely limited** in the early years of training.

Challenges for surgeons and the system…..

The Challenges

Category 1: Preoperative/Training Surgical Simulation Technologies

What if surgeons could be better informed through artificial intelligence, and data analytics and be able to practice complex surgery in advance?

What if detailed anatomical models (physical or virtual) could be readily available before surgery?

What if data analytics and AI could better predict outcomes of complex surgery?

What if each patient could have a virtual double that could be operated on in a simulation?

What if 3D printed replicas of organs, bones, tissues, tumours and blood vessels could be made widely available to surgeons?

What if models could enable surgeons to visualise the detail they normally only see once operating on a patient?

What if AI could be used to inform pre-operative planning and predict outcomes?

What if existing imaging and information could be used to virtually engineer a patient?


60
95
30

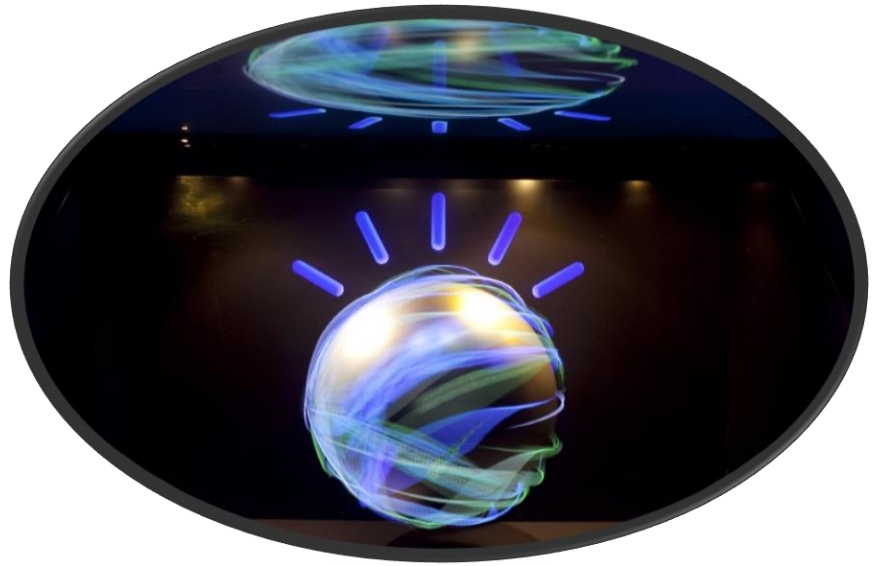



image source: neurosurgerycns.files.wordpress.com

The Challenges

Category 2: Technologies to assist with surgical procedures

What if we could use technologies to enhance surgical performance, reduce variation in outcomes and reduce costs?

What if technology could enhance clinical decision making during surgery?

What if robots could carry out parts of surgical procedures?

What if surgical margins could be predicted in real time?

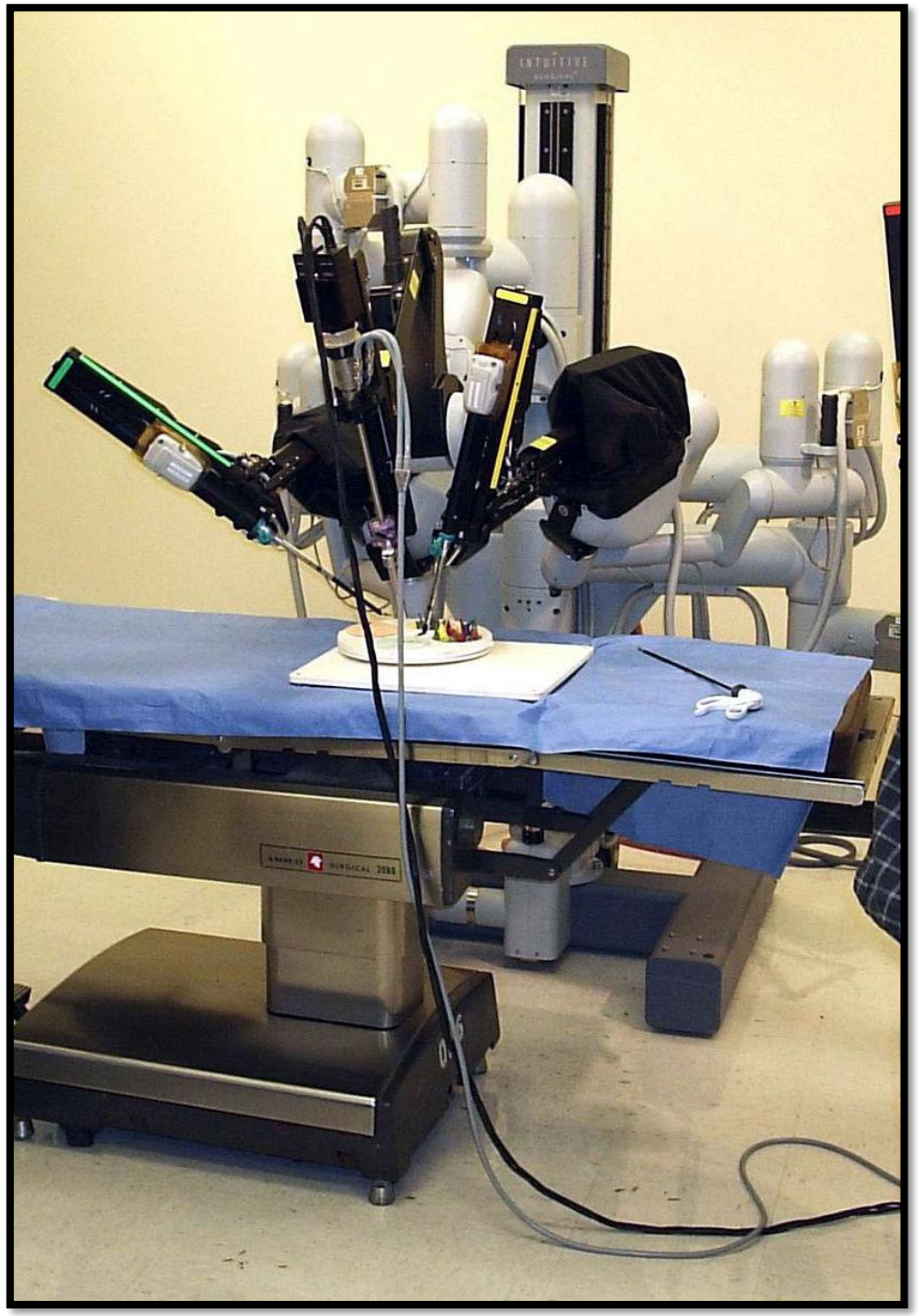
What if tissues could be tested in real time during surgery?

What if light sources were nearer the site of surgery e.g. directly from instruments?

What if pressure sights could be monitiored and adjusted during surgery?

What if waste generated in theatres could be automatically sorted?

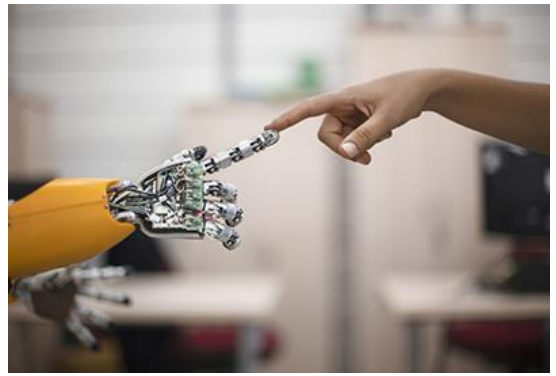
What if frugal design methods could be used to reduce costs for the NHS?


INTUITIVE

Is this inevitably the way forward…….???

- What are the limits to what AI can achieve?
- Will the funding be sufficient for needs?
- Will it be dangerous or unethical?
- Will AI in planning and prognosticating stifle a surgeons innovation
- Who will be liable if AI fails?

Artificial Intelligence is a trusted advisor and can beat a human in precision, skill and theoretical knowledge in todays world
Will Surgeons still remain at the top of the medical food chain????



SBRI Healthcare

Karen Livingstone, National Director SBRI Healthcare

The AHSN Network

NHS England

The application process

www.sbrihealthcare.co.uk

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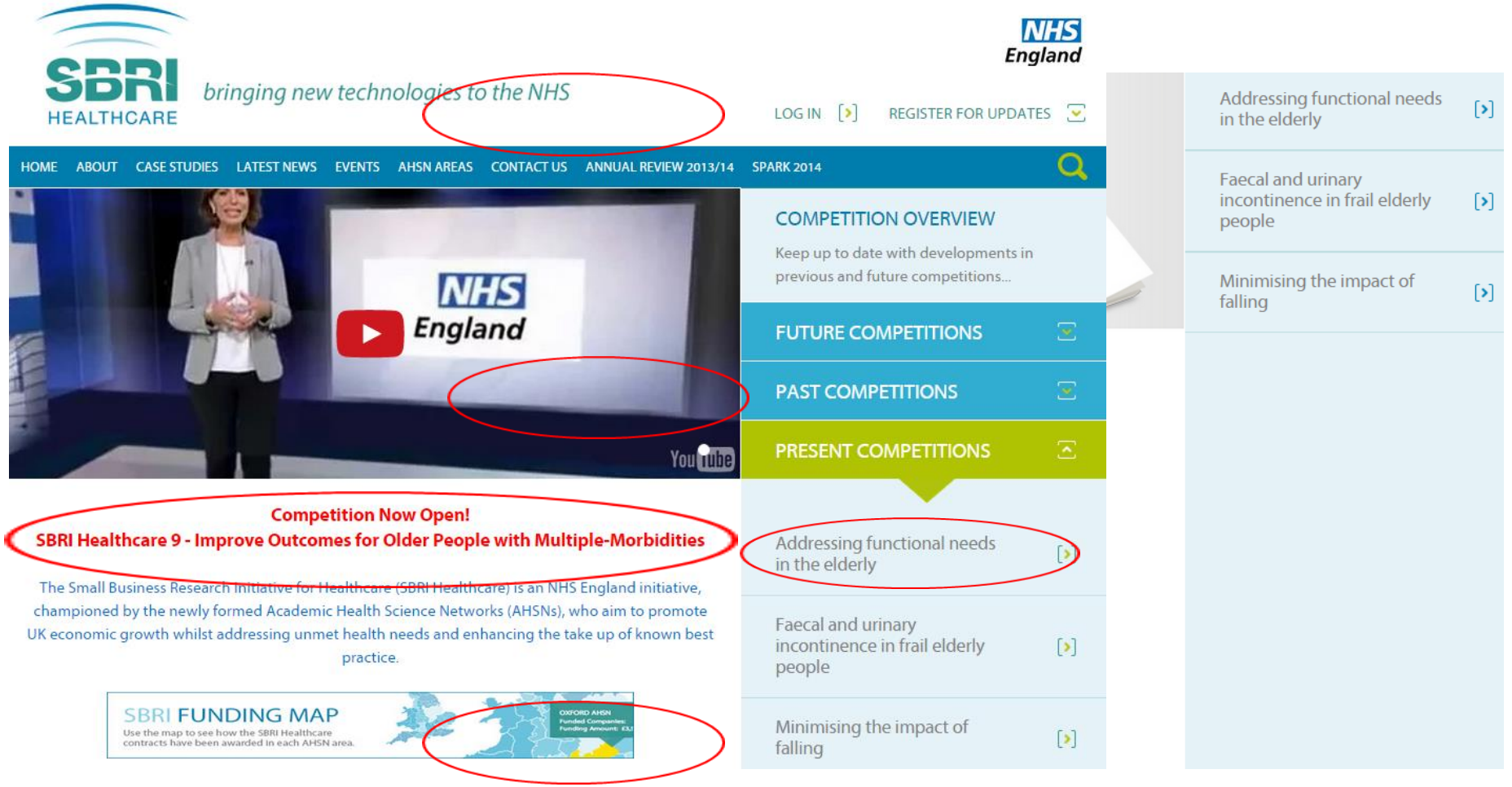
The AHSN Network

NHS England

Application Process

www.sbrihealthcare.co.uk



The AHSN Network

NHS England

SBRI HEALTHCARE

bringing new technologies to the NHS

Home » A-0014

A-0014 (A-0014)

This submission is in stage **Active Applications** with a status of **Active**
It was last updated at: 06/16/2015 01:55:24 PM.

Active Applications

Task	Status	Actions
Download of Application Guidance	INCOMPLETE	Start
Application Summary	INCOMPLETE	Start

View Rankings

Progress

This submission is 0.0% complete. You still need to:

- Complete task "Download of Application Guidance"
- Complete task "Application Summary"
- Complete task "Company Details"
- Complete task "SBRI Application Form"
- Complete task "Declaration"
- Submit

Members

Nicholas Offer (Owner)

Add Member

Edit Members

Language English Go

0%

SBRI HEALTHCARE

SBRI Application Form

Required fields are noted with an *

1) Description of Proposed Idea/Technology *

Please provide a brief description of your proposed idea/technology and how this addresses the customer need, market and patient problems. Include how you plan to engage key stakeholders in Phase 1. Please consider defining the market/patient you plan to address; the implications, size, cost of the problem and market. Outline your solution and how it meets the market/patient needs, including the needs described in the competition category brief, how it could be implemented, cost of doing so and any other matters arising from its adoption. To support this description you may upload an image file by using 'Upload Proposal Document(s)' Task, which is available from the Main Application task menu. (500 word limit)

2) Technical Project Summary *

Please give a short assessment of the key technical chal... will be overcome. List the key technical deliverables and how they will be met. In addition, please provide a sh... limit).

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NHS England

Application Summary	INCOMPLETE	Start
Company Details	INCOMPLETE	Start
SBRI Application Form	INCOMPLETE	Start
Upload Attachment (optional)	PREREQUISITES NOT MET	
Upload 2nd Proposal Document (optional)	PREREQUISITES NOT MET	
Declaration	INCOMPLETE	Start
Submit your application	PREREQUISITES NOT MET	

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Assessment Criteria

1. What will be the effect of this proposal on the challenge addressed?
2. What is the degree of technical challenge? How innovative is the project?
3. Will the technology have a competitive advantage over existing/alternate technologies that can meet the market needs?
4. Are the milestones and project plan appropriate?
5. Is the proposed development plan a sound approach?
6. Does the proposed project have an appropriate commercialisation plan and does the size of the market justify the investment?
7. Does the company appear to have the right skills and experience to deliver the intended benefits?
8. Does the proposal look sensible financially? Is the overall budget realistic and justified in terms of the aims and methods proposed?

Key Points to Remember

- Research and define the market/patient need
- Review the direct competitor landscape and make sure you define your USP
- Consider your route to market, what is the commercialisation plan? Do you know who your customer will be, how will you distribute, how much will you charge for the product/service?
- How will the project be managed (what tools will you use, how will the team communicate etc)
- Provide a clear cost breakdown
- Make sure you answer all of the questions in sufficient detail
- Try not to use too much technical jargon, sell the project in terms the NHS will understand (outcomes, benefits to patients etc)

Contact Us

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Any Questions?

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