



Supporting innovation across NHS Scotland

Innovating in the NHS with SHIL - bringing good ideas to life

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Scottish Health Innovations Ltd (SHIL)

Supporting innovation across NHS Scotland

www.shil.co.uk
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Innovation

**“the application of better solutions that
meet new requirements, unarticulated
needs or existing market needs”**

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Form over Function?

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Innovation


Why do we need to innovate?

Why do we need new ideas and business propositions?

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Berlin Wall built 1961

Trabant 601 (1963)



BMW 700 (1963)



Attributions: Bundesarchiv, Bild 183-B0503-0015-001 / Weiß / CC-BY-SA 3.0
https://commons.wikimedia.org/wiki/File:1963_BMW_700A,_692cc_32hp_120kmh_Bild1.JPG

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Berlin Wall dismantled 1989



Trabant 1.1 (1989)

[https://commons.wikimedia.org/wiki/File:Trabant_1.1_\(8140894846\).jpg](https://commons.wikimedia.org/wiki/File:Trabant_1.1_(8140894846).jpg); CC-by-2.0



BMW 3 Series E36 (1990 launch)

[https://commons.wikimedia.org/wiki/File:BMW_3_Series_E36_\(5061103844\).jpg](https://commons.wikimedia.org/wiki/File:BMW_3_Series_E36_(5061103844).jpg); CC-by-2.0

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Innovations are:

Revolutionary
– *really alternative* developments (“disruptive”)
or
Evolutionary
– *incremental* developments



[File:SonyWalkmanFamily.JPG](#)
Marc Zimmermann / CC BY-SA 3.0




Touch Bionics

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Innovative organisations

Organisations that do not innovate effectively may be destroyed by those who do.

Making it **EVERYONE'S** responsibility.

Recognise and overcome barriers:

- **Fundamental:** budget, history, culture, time, resources, etc.
- **Advanced:** technology, organisational structure, departmental layouts, etc.

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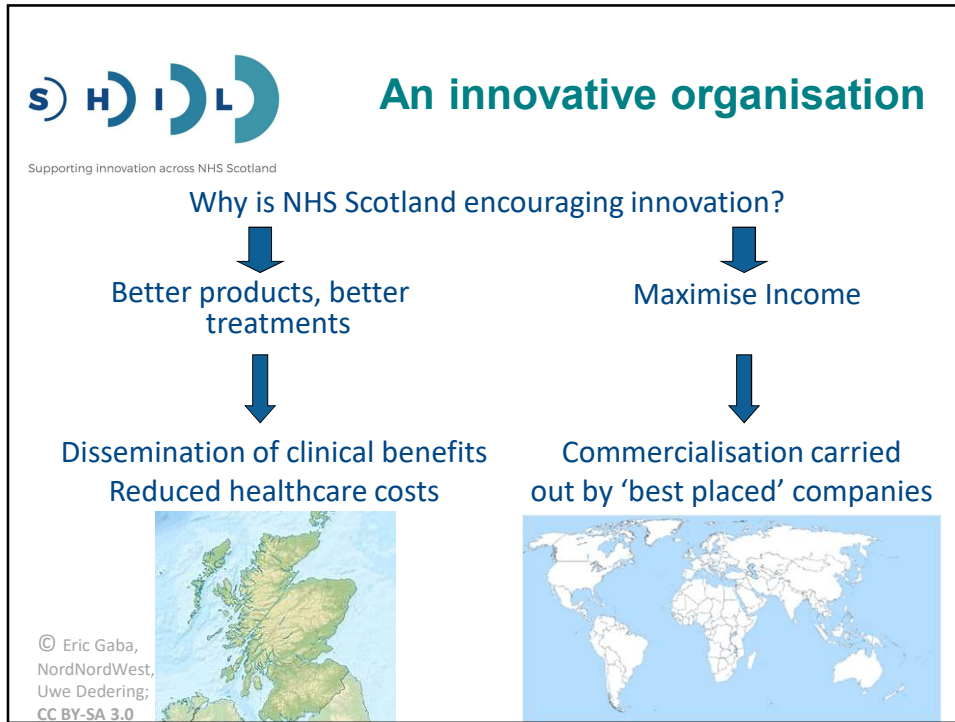
An innovative organisation

**Who are the innovators within
NHS Scotland?**

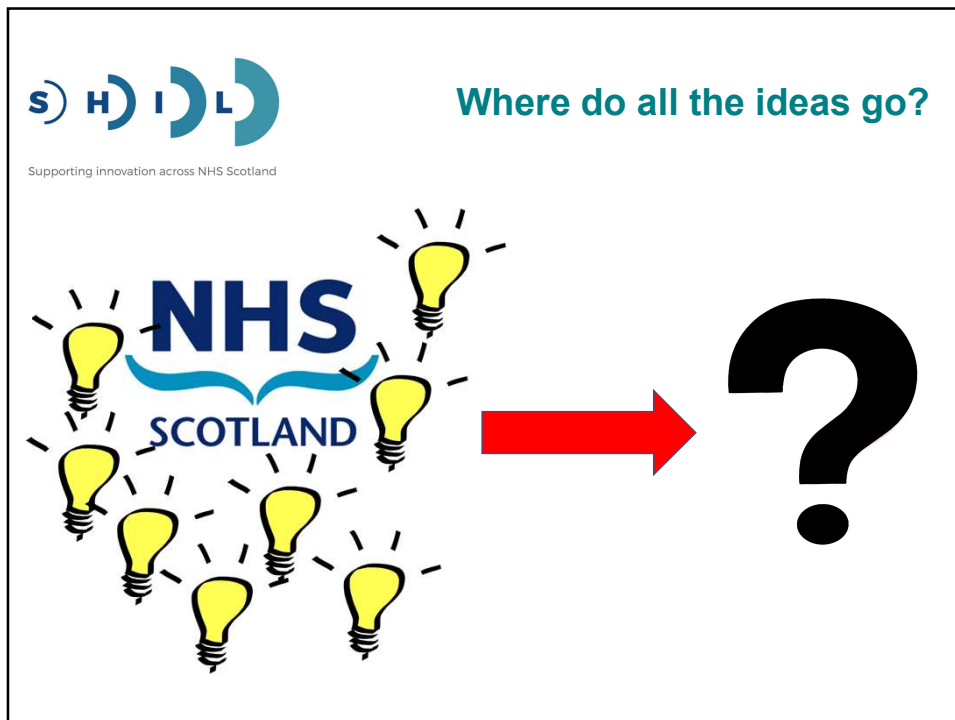
YOU!

Healthcare scientists, clinical scientists,
biomedical engineers, bioinformaticians,
occupational therapists, medical physicists,
physiologists, physiotherapists, midwives, medics,
nurses, surgeons...

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Innovation Landscape



Open Innovation
(Health, Public Sector, Academia, Industry)



Innovation Hubs
Developing local hubs with NHS Boards



Enabling Innovation
Tools, processes and activities to support change



SCOTLAND CAN DO
IT'S TIME TO MAKE HISTORY



Scottish Enterprise



DIGITAL HEALTH & CARE INSTITUTE



THE DATALAB
value from data



Scottish Health Technologies Group



Health Innovation Assessment Portal



Stratified Medicine Scotland



Forr
The Farr Institute of Health Informatics Research

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SHIL's role







- Promoting and encouraging innovation within NHS Scotland is a key priority for both the Chief Medical Officer and CSO
- Current CSO priorities are to 'de-clutter' the innovation landscape within Scottish healthcare
- SHIL will play an increasingly important role as the vehicle that allows Health Boards to share in the financial rewards from innovation activities

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SHIL in Numbers

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- 1,721 ideas** generated from NHS Scotland staff 
- Investments in **5 spin out companies** managed on behalf of NHS Health Boards 
- 25 commercial license deals** successfully negotiated with companies within the UK and internationally 
- Protected the Intellectual Property, Trademark, Copyright and Design Right for over **250 NHS inventions** 
- With a prospective value to Health Boards and SHIL of more than **£15 million** 
- 800 hours** of commercial advice to Health Boards over the last 18 months 







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What we do

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- WE ENCOURAGE 
- WE ASSESS 
- WE PROTECT 
- WE DEVELOP 
- WE COMMERCIALISE 
- WE FUND 

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What we do

- **Inform** NHS staff about Intellectual Property (IP)
- **Find** ideas within NHS Scotland
- **Evaluate** the ideas
- Decide on **commercial viability**
- Develop the idea to at least **proof of concept**
- Rapid **prototyping**
- **Protect IP** where necessary
- Develop **routes to market**
- Generate **revenues**
- Generate **grant funding**
- Form **Spin-Outs/enter Licencing Agreements**

➔ **Give a return to the NHS**

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What's IP and why does it matter?

- Intellectual Property (IP) is the defining of a creative idea. It protects the creator while allowing him/her to share the idea.
- Sharing ideas in an equitable manner encourages creative solutions
- IP is normally owned by your employer
- Typically Research & Development teams manage IP on behalf of their Health Board
- Each Health Board has their own IP policy with further details.

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How we add value

Employer owns all IP, but a revenue sharing scheme exists to encourage and reward innovation – see your health board’s policy for details (below NHS Lothian)

NB: Students retain their own IP!

Range of Income	Inventor(s); Member(s) of Staff; Student(s)	NHS Lothian	
		Division/ Office	NHS Lothian/ R&D fund
Net income < £50K	50%	30%	20%
Net income >£50K	35%	35%	30%

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ADDING VALUE THROUGH PRODUCT DEVELOPMENT

```

    graph LR
      subgraph Path1
        P1[Prototype  
Proof of Concept] --> D1[Development  
Design for Manufacture  
Multidisciplinary]
        D1 --> R1[Regulatory Approval  
Risk Analysis  
Clinical Evaluation  
Packaging, Labelling]
      end
      subgraph Path2
        P2[Funding  
Grant, Partner Contribution,  
Contribution in Kind] --> E2[Expertise  
IP, Legal, Industry,  
Academia, Commercial,  
Regulatory]
        E2 --> T2[Technology  
License,  
Collaboration, Joint Venture,]
      end
      subgraph Path3
        P3[Business  
Market Assessment,  
Business Planning] --> I3[Investment]
        I3 --> M3[Marketing and Distribution]
      end
  
```

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Benefits to inventors

- **Faster timelines for development**
- **Protecting your idea in the optimal way**
- **Funding**
- **Continuous support and endorsement**

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Success stories

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Licences
SCRAM® Bag

SCRAM® - Structured Critical Airway Management

- 2013 from Scottish Ambulance Service Scotstar paramedic, Paul Swinton
- System of advanced preparation and organisation of equipment and drugs for rapid sequence intubation
- Licence deal signed with Openhouse to manufacture and distribute
- Sold to ambulance services, air ambulance, flying doctors around the world
- Paediatric version with NHS Lothian launched

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Licences

A&E Weighing Scales

- Idea brought SHIL in 2014 by NHS Lanarkshire A&E nurse
- Licence signed with Marsden Weighing Group November 2017
- Industry partner bearing the six figure cost of testing and liaison with its Chinese partner
- CE marked; NAWI & BSI approved
- On sale since October 2018



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Consultancy



PEEKaBoo®

- App for testing visual acuity in children
- Class I medical device developed by NHS GG&C Medical Devices Unit
- Came to SHIL in 2014
- Available free from App Store
- SHIL applied for registered trademark on behalf of NHS GG&C; consultancy on certification

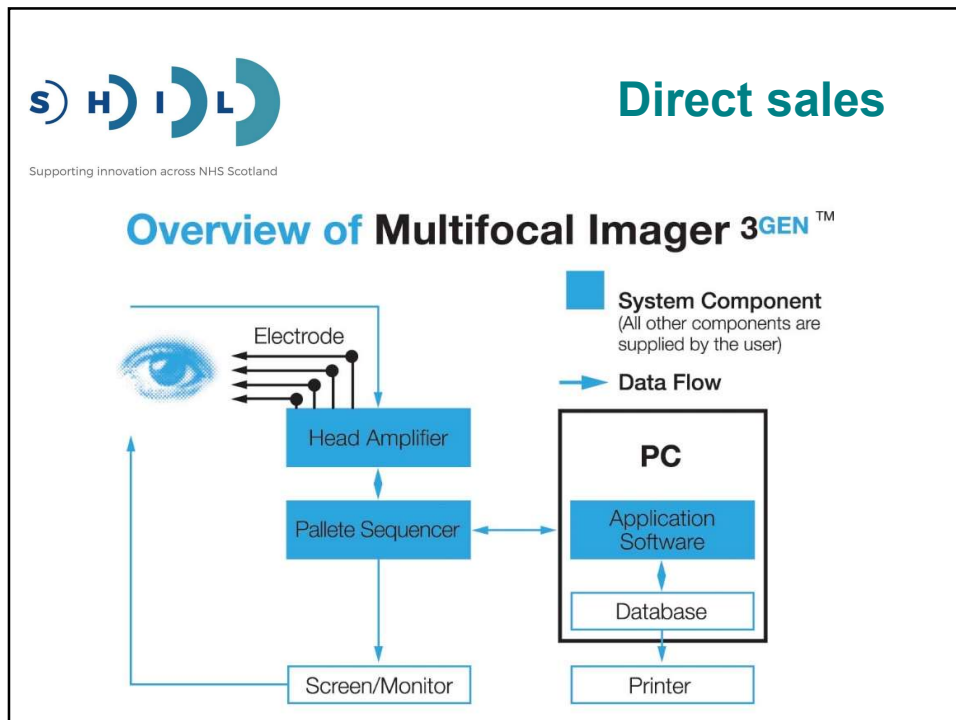


PEEKABOOVISION

info		
options		
start		
-0.18	0.12	0.30
0.42	0.52	0.60
0.72	0.82	0.90
1.00	1.10	1.20
1.30	1.40	1.50
1.60	1.70	1.90
distance: 50 cm		

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Multifocal Imager

- Map of Retinal Function; different retinal locations
- Functional changes will occur much earlier than structural changes > Earlier diagnosis
- Very sensitive disease monitoring
- Direct Sale; Legal Manufacturer
- Driver for BS EN ISO 13485 Accreditation

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Spin outs









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Spin out



- World-leading prosthetic technologies and supporting services designed for people with upper limb deficiencies.
- Idea from Bioengineer, David Gow, NHS Lothian
- First spin out from NHS Scotland in 2003, (NHS Lothian)
- SHIL established company as Touch EMAS and assisted in 2nd round of financing
- Touch Bionics sold to Össur for £27.5m in April 2016

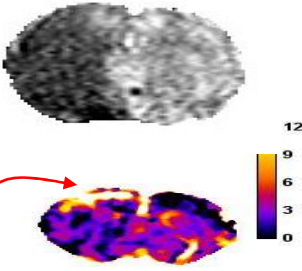
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Spin out
AURUM
biosciences

- Novel technique for measuring metabolism using MRI with bespoke PFC material in preclinical development
- Acute ischaemic stroke market \$2.9Bn
- Idea brought to SHIL (2006) by Clinical Consultant Neuroradiologist; Patent portfolio assigned from UoG and NHS GG&C
- Aurum spun out by SHIL in 2015, investment from TriCap & Wellcome Trust (SHIL stake 21%)
- Approval from UK regulatory authority (MHRA) for a Phase 2 clinical trial

Perfusion Image reduced blood flow



Penumbra detected with **GOLD technology**


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Spin out
CardioPrecision
Advanced Cardiovascular Solutions


- Developing high quality medical devices and methods for minimally invasive mitral valve replacement = **CoreVista® retraction system**
- Global market size - \$1.5bn now and \$3.1bn by 2020
- Idea brought to SHIL in 2003 by NHS GG&C consultant cardiac surgeon and spun out in 2007
- Proof of concept work and first in man procedure completed with CE mark due by 2017/18
- £12.5 m valuation at last funding in 2015 (funders include Discovery, Highland VC, Wellcome Trust) – SHIL stake 13.5%

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How we help

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Get in touch

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