A new culture of innovation in Scotland
The case for Digital Health and Care Institute

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”Necessity is (also) the mother of all innovation.”
Scottish Funding Council’s Vision

• “Innovation Centres will create sustainable and internationally ambitious open-communities of university staff, research institutes, businesses and others to deliver economic growth and wider benefits for Scotland”.

• £124M invested in Innovation centres over four years
The Scottish Environment

- 19 higher education institutes
- 14 territorial health boards
- 6 specialist health boards
- 32 local authorities

- 32 Health & Care Partnerships
- >250 third sector organisations
- 1,200 high growth companies
Scotland’s Innovation Centres

Innovative sensor and imaging solutions. Reducing risks, costs and time to market for industrial applications

Building the Future: Blending industry demand driven challenges with world-leading academic expertise to supercharge growth across the construction sector in Scotland, through a mixture of collaborative R&D, explorative new technologies and disruptive innovation, creating global opportunities for local companies

The Data Lab,
Unlocking Value from Data

Constructively disrupting health and care provision through innovating the right products and services and establishing a new digital health economy for Scotland

Bio-based solutions for the chemical, life science and energy industries – Led by Industry for Industry

Delivering a University matchmaking service and providing access to innovation funding for the entire oil and gas supply chain

Industry success through research partnerships: driving applied research to boost the long-term economic benefits of farmed fish, shellfish and aquatic plant life

Right patient right drug, right time. Applying genomic medicine to the NHS and Pharma/bio clinical development
The Digital Health and Care Institute

- Established in 2013 by NHS24, University of Edinburgh and Glasgow School of Arts.

- Aim: to work collaboratively to create digital innovation in Scotland in health and care integration with focus on the delivery of Academic, Business and Civic Impact.
Definition of health (and care):

"Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease and infirmity."

-the World Health Organisation

(the definition has not been amended since 1948)
What is Digital Health?
Digital Health & Care - Lexicon

- Wireless health
- mHealth apps
- Gamification
- Health 2.0
- Big data
- E-patients
- D-carers
- Telehealth
- Telemedicine
- Cloud computing
- Connected Health
DHI INNOVATION MODEL

DHI’s innovation model is made up of the three settings:

EXPLORATORY, LABORATORY & FACTORY

which will overlap and sequence dynamically to meet the needs of the opportunity in question.
DHI EXPLORATORY engages a wide range of organisations to develop priorities for action informed by the most current, diverse and relevant research, innovation and knowledge sources. This provides a crucial horizon scanning capability, allowing Scotland to design and innovate for the future. The Exploratory runs activities to stimulate the development of ideas.
Addressing emerging needs
(of citizens, health and care services, professionals, etc.)

Real Life
- Health & care professionals, decision makers, health and social managers, academics, technicians, designers, humanistic, carers and families

Knowledge
- Evidence, good practices, international knowledge exchange

Opportunities

Further Actions
- Goes back to exploratory
- Moves to laboratory
- Moves to factory
- Complete
Searching for Digital opportunities

Bespoke Exploratoris

- Scottish ambulance service redesign
- Mental health apps
- Music therapy solutions
- Atrial fibrillation
- My Little One and mHealth
- Treatment adherence
- Next generation of digital records
- Blood donation service redesign
- Outpatient care redesign
- Long term care revolution

Not all solutions require the same process nor the same methodology
DHI LABORATORY provides a safe environment where users (service users, carers, clinicians, practitioners and third sector), businesses and researchers can collaborate and rapidly prototype in response to health and care challenges. Experience labs provide a creative environment using design to carry out rapid cycles of experience trialling of new ideas.
Experience Lab: Next Generation Ambulance

What is the challenge?
**Decision Support**

- Who is involved here?
- N.B. Linking to existing pilots!
- Alternative pathways
- Who we gonna call??

...and here?
DHI FACTORY supports DHI members in progressing a known solution closer to market and deployment. The Factory offers a facilitation and resource platform, including access to expertise and test environments, business mentoring support and facilitation to source funding. The Factory works with industry, health and care partners, third sector and university partners to develop solutions for real life.
Atrial Fibrillation (AF)

- Atrial Fibrillation is the most prevalent sustained heart rhythm disorder
- AF increases individuals’ risk of suffering a stroke by five times
- 60% increase in hospital admissions due to AF since mid-90s
- Millions of pounds of avoidable expenditure in the NHS in Scotland
What have we done?

- Evaluated whether it is possible to take accurate ECGs anywhere at low cost
- Determined the number of undetected Atrial Fibrillation cases
- Conducted an academic & health economic analysis on long term consequences of undetected Atrial Fibrillation and stroke high prevalence
The AliveCor Heart Monitor
Portfolio Breakdown

Over 80 Projects

- 25+ ideas at speculative stage
- 20+ products near prototype
- 30 products at prototype or beyond

Membership Network – 1200 digital health innovators from across Academic, Business and Civic Sectors

Active Project Partners
- 47 businesses,
- 63 academic teams or institutes
- 66 teams or organisations across health & care services
Successes:

• Linking industry capability to the Scottish Government Health and Care priorities;
• Leveraging the high quality academic expertise present at Scottish HEIs;
• Brokering between representatives from academia, SMEs and civic organisations to form new collaborative projects;
• Raising interest from large international corporations for Scotland as a place to do business.
Challenges:

- Interdisciplinary and cross-sectoral collaboration;
- Trying to innovate within a well-established system built-up over decades;
- Trying to exist and expand as an independent entity tied within the governance structures of other institutions;
- National scaling up of successful projects;
- Funding only available to the academic partners;
- Scottish geography.
Questions