

Making Open Source best practice in health & care



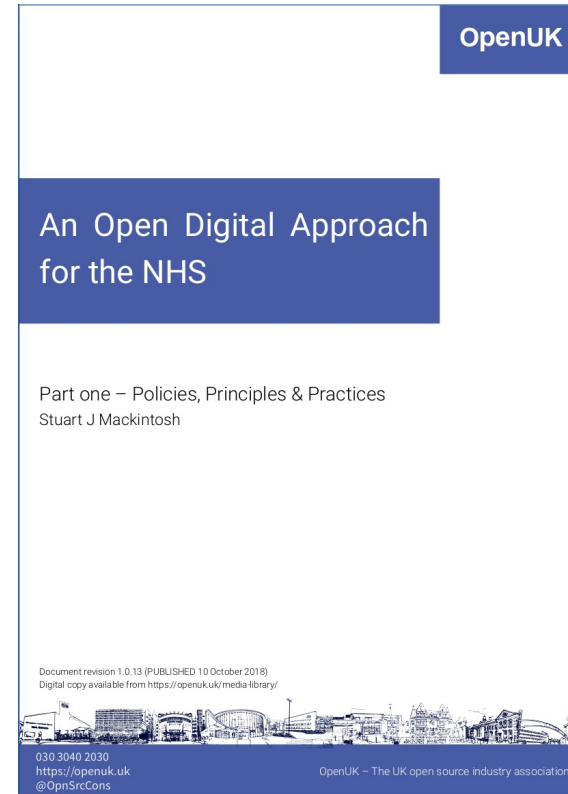
Stuart J Mackintosh
@SJMackintosh

- **DITO - Develop In The Open**
 - Project lead <https://dito.tech>
- **OpusVL - Open Source integrator**
 - Founder / CEO <https://opusvl.com>
- **OpenUK - UK Open Source industry association**
 - Founder / Director <https://openuk.uk>
- **The Perl Foundation**
 - President <https://perlfoundation.org>

An Open digital approach



- **Policy:** What is the current policy, and how do the recommendations within this document support it?
- **Principles:** What are the principles that are both practical and able to meet the policy and recommendations?
- **Practices:** What must be done to work operationally to those principles, and how can this be measured?



I've said it,
Now what?

The DITO project - Develop In The Open!



Objectives:

- 1) **Develop and share best practice processes for development and implementation of digital health technology**
- 2) **To evidence the process, produce a digital application using the developed process**

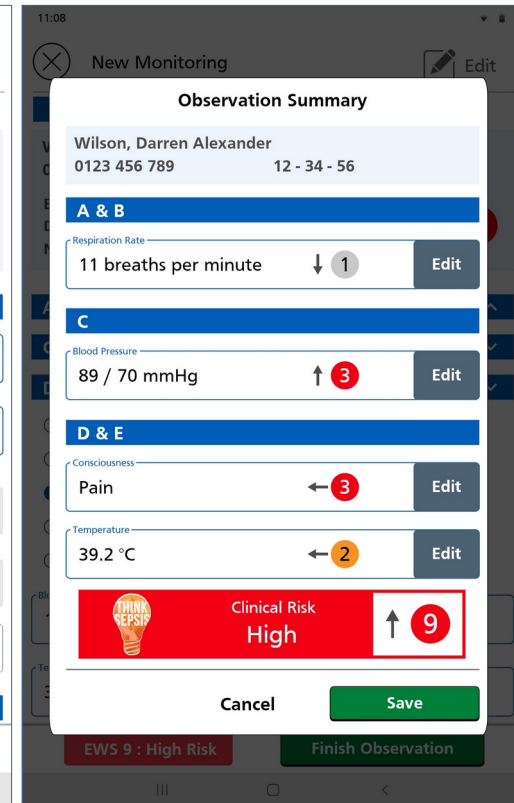
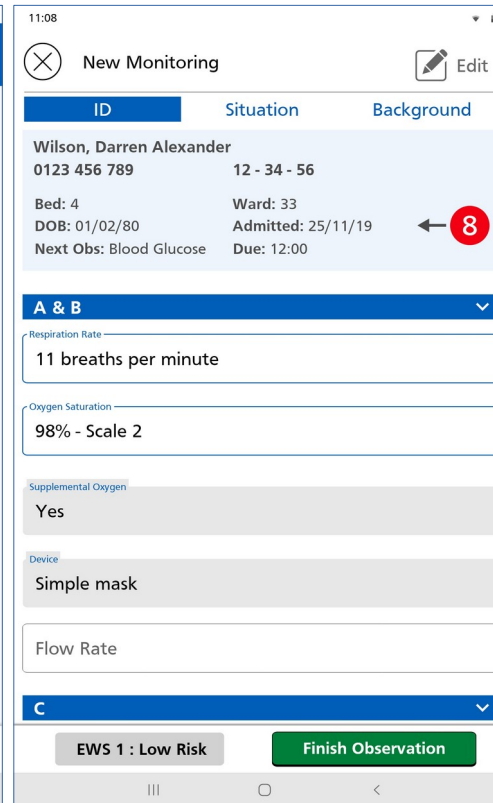
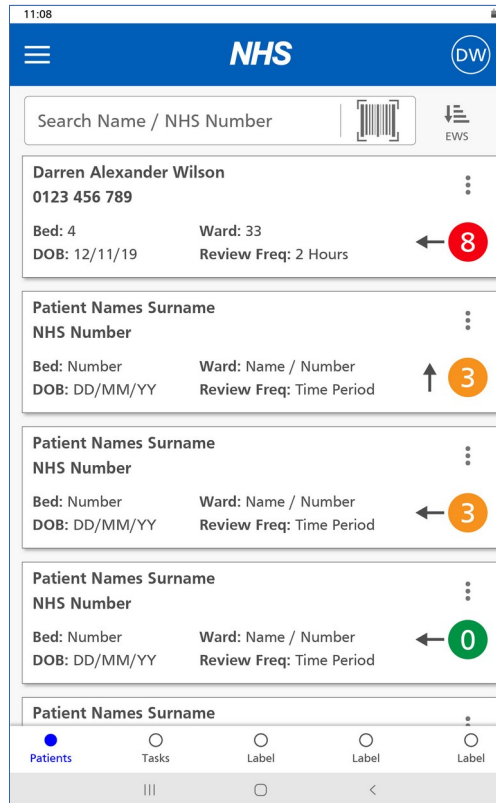
Our project partners

- **Coventry University**
- **South London & Maudsley NHS Trust**
- **Cheshire & Wirral NHS Trust**
- **Apperta - Not for Profit custodian**
- **OpenUK**



The application

- 200+ screens
- Collaborative consultative design
 - Clinical
 - Technical
- Full workflow
- openEHR
- Open Source AND stunning



Key challenges & learning



Clinical

- **“Like paper”**
- **Numeric data input**
- **Un/structured data**
- **Accessing EPR and other systems**
- **Integration with policy**

Environmental

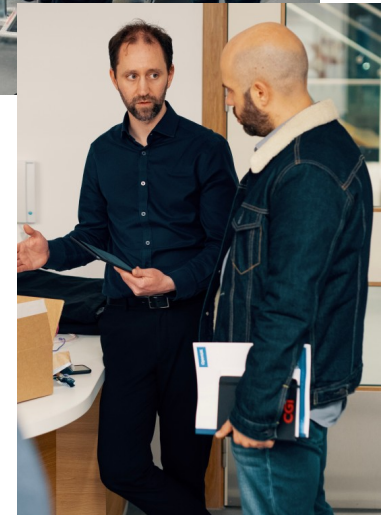
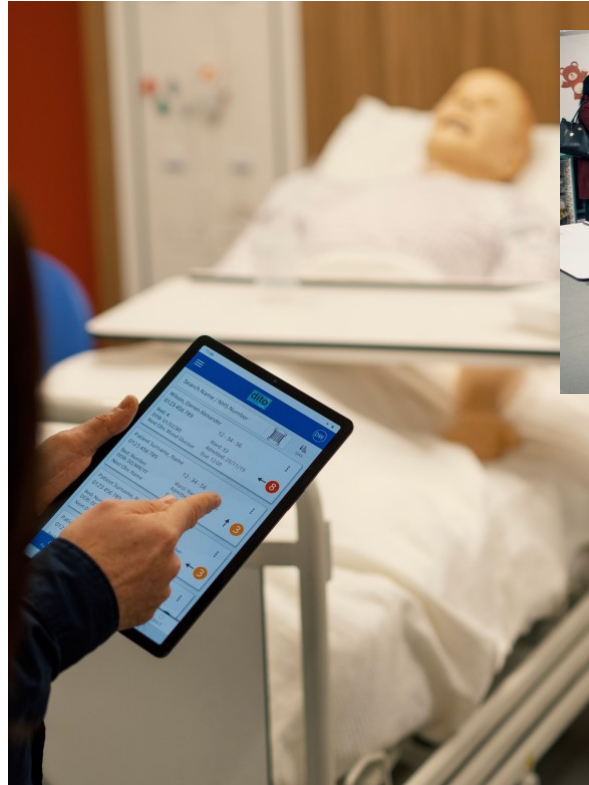
- **'federated whilst centralised' loosely governed system**
- **Attitudes, ingrained cultures**
- **Contracts & commercial**

Technical

- **Technical debt**
- **Incumbent systems**
- **Interoperability & data access**

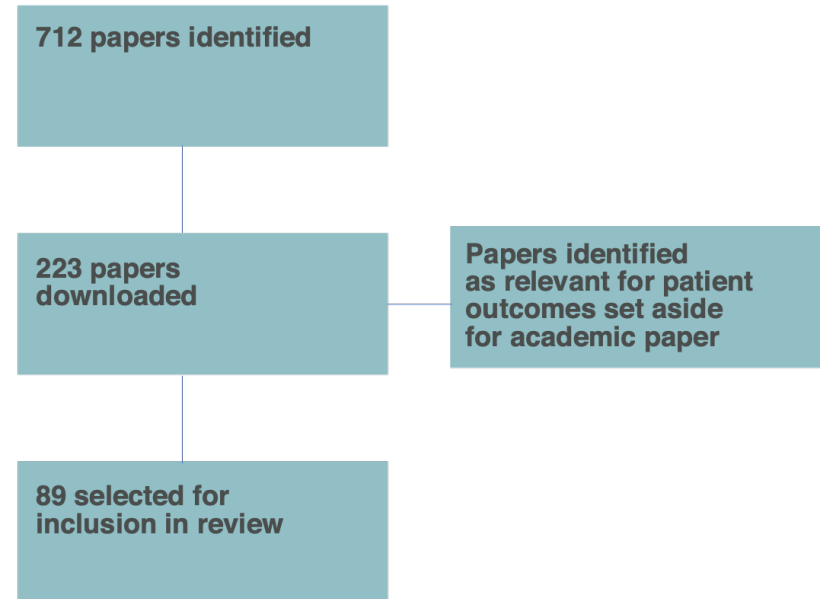
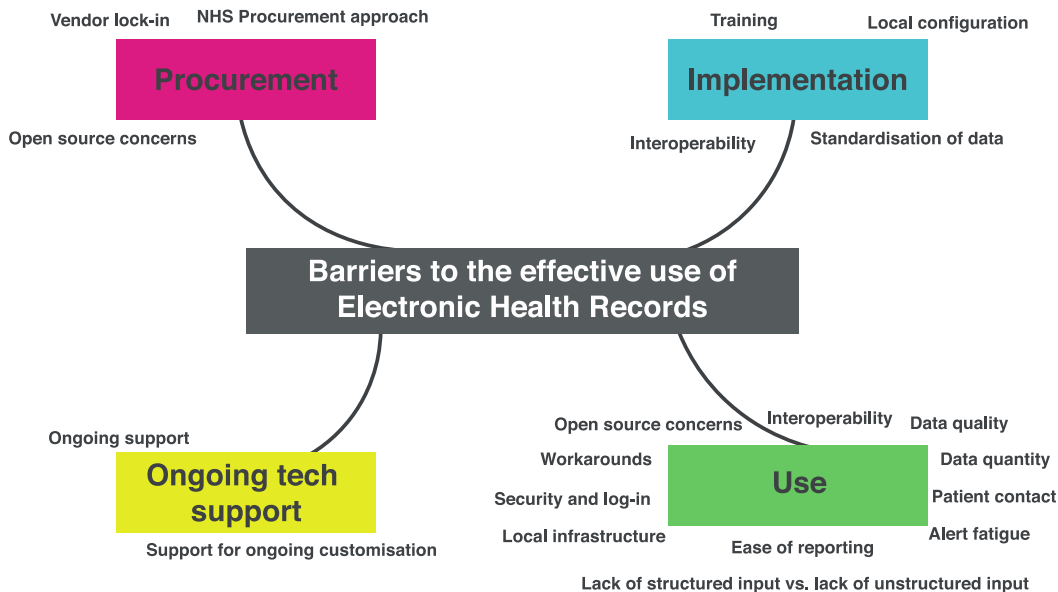
Evidence: The software

- **Nurse interviews**
 - Understand the need
- **Prove in simulator**
 - Coventry University
- **Deploy for field trials**
 - Clinical partners
- **Open Source safety case**
 - Safer than the alternatives



Evidence: The process

- Extracts from the academic study



A micro success study



- **Developing the DENWIS archetype**
 - The need: 'Free-text' issue
 - Located the clinical specification
 - Worked with experts to create the definition
 - Loaded in to CDR
 - Configured the interface
 - Enabled other interfaces
 - Ready for use
- **This is what DITO enables.**

Theory: Limiting factors of Open digital health tech



- **Are not:**

- Digital / tech
- Money
- Capability

- **Are:**

- Awareness & appreciation of the opportunity brought with an Open approach
- 'Product' thinking
- Understanding of commercial and governance models
- Effective use of money

What's next?



- **Publish evidence, documentation, code**
 - Safety case, policies, approach, implementation manual, repo's
- **Prove and implement eObs V2**
 - Simulation testing, field trials
 - Extend V2 to cover full chain of prevention
 - Implement new functionality
- **Interoperability**
 - Extend Open Architecture work with NHS England, Scotland, Wales, Northern Ireland
- **OpenEHR - Task Planning**
 - Encapsulated, standardised and regulated work-flow and process
- **OpenEHR - Guideline Definition Language**
 - Encapsulated, standardised and regulated algorithms

Questions?



- **In person: 6th February London DRIVE**
- **Publications, screenshots etc: <https://dito.tech>**
- **Professional services: <https://opusvl.com/>**
- **Communities: <https://apperta.org>**
- **UK Open Source Industry: <https://openuk.uk/>**