...for FOXS sake!

A story of finding oneself in an emerging digital landscape...

John Meredith
Assistant Chief Architect,
Digital Health & Care Wales

Date 14/10/2021
The national organisation, building and designing digital services for health and care in Wales.

The National data platform that underpins our digital health and care record and services analytical data stores.
Cardiff, Wales
Rugby!
Hymns and Arias
❤️ Tom ❤️
In the beginning...
Standards: Easy, right?

Mapping
Transforms
Reference Data
ENGINEERING!
Standards: Easy, right?
Standards: Easy, right?
Standards: Easy, right?
Standards: Easy, right?
How Standards Proliferate:

(See: A/C chargers, character encodings, instant messaging, etc.)

**Situation:**
There are 14 competing standards.

14?! Ridiculous!
We need to develop one universal standard that covers everyone's use cases. Yeah!

**Soon:**

**Situation:**
There are 15 competing standards.
Standards:

CLINICAL DATA STANDARD

PERSISTENCE
Separation of apps and data

3rd Party Consumers (Apps and Services)

NHS Applications and Services

Application Layer

Platform APIs

Routing | API Management | Transforms | Authentication | Terminologies

Open Architecture - Loosely Coupled

Systems APIs

Legacy Repositories | Results | Docs | Structured Data

Data Layer

FHIR

IHE XDS

SNOMED CT

openEHR
Digital Maturity
Standards Supporting Macro-Scale Interoperability

- **IHE** (Integrating the Healthcare Enterprise)
- **XDS**
- **FHIR** (Fast Healthcare Interoperability Resources)
- **SNOMED CT**
- **openEHR**
The FOXS Stack = Open Architecture
The prize of a robust and reliable health and social care system in Wales is within reach, but it cannot be achieved without a change in approach, focus and energy.

### Digital architect

- **Adopt a core set of Digital Design Principles.**
- **Adopt and publish a TOGAF® (or similar) framework, locating Digital Architecture in a business context for the NHS in Wales.**
- **Define the all Architectural Building Blocks (ABBs) for the NHS Wales Digital Architecture.**
- **Define all candidate open national applications (e.g. WCP, WCCIS etc.)**
- **For the key ABBs required for an Open Digital Architecture (EMPI, Integration and Interaction, and CDR) develop a consistent set of core products that are agreed and published nationally.**
- **Start to focus on some early wins.**

### Open digital platform

- **Enhance the NHS Wales EMPI along principles to facilitate a more informed Patient/Citizen engagement strategy.**
- **Improve the NHS Wales Integration and Interaction Engine to provide a truly open platform for NHS Wales.**
- **Focus the work of the National Data Resource (NDR) programme on the creation of a National Clinical Data Repository in line with open principles whilst progressing the programme as a whole.**
- **Make migrating the WCP to an open architecture the highest priority for the product in the next 12 months. This will need to address any impacts on the current work programme.**

### Stabilisation and resilience

- **Build on the final recommendations of the Trustmark review of networks to move towards a modern (possibly multi-sourced) software managed national network and storage infrastructure.**

---

Channel 3 Consulting

Final Report – MARCH 2019
National Data Lakehouse

Data Integration (ETL/ELT)

Information Services Inputs

Source systems

Consuming On Premise Applications

Other Data Sources
E.g. GP Data, Community etc.

Health Board

Local CDR

Data Warehouse

Information Services Inputs

Clinical Data Engine

openEHR Forms

Consuming On Premise Applications

API Management

FHIR Datasets
De-identified Datasets
DHCW Datasets
Health Board Data Sets
Curated datasets
Raw Datasets

HL7 to FHIR

De-identified FHIR stores
De-id FHIR1
De-id FHIR2

Welsh Care Data Repository (WCDR)

Live streaming

Federate data to

Managed Data Science Platform

DICOM Store
De-id DICOM Store

NLP Platform
Clinical Notes For SnoMed Coding

PUBLICATIONS
FHIR Datasets
De-id Datasets
DHCW Datasets
Health Board Data Sets
Curated datasets
Raw Datasets

ACCESS METHODS
Web
PSBA
VPN

DATA VISUALISATION
Power BI
Tableau / Qlik
Looker
Data Studio
Danke fürs Zuhören!*  

✉️ John.Meredith@wales.nhs.uk  
🐦 @johnmeredith  

* Geben Sie Google die Schuld, wenn dies keinen Sinn ergibt.