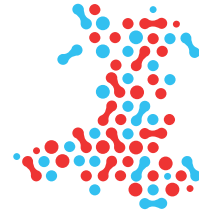




GIG
CYMRU
NHS
WALES

Iechyd a Gofal
Digidol Cymru
Digital Health
and Care Wales



NDR

Adnodd Data Cenedlaethol
National Data Resource

...for FOXS sake!

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

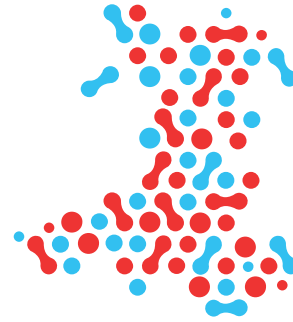
John Meredith
Assistant Chief Architect,
Digital Health & Care Wales

Date 14/10/2021



GIG
CYMRU
NHS
WALES

Iechyd a Gofal
Digidol Cymru
Digital Health
and Care Wales



NDR

Adnodd Data Cenedlaethol
National Data Resource

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.



GIG
CYMRU
NHS
WALES

Iechyd a Gofal
Digidol Cymru
Digital Health
and Care Wales



Cardiff, Wales





Rugby!



Hymns and Arias



♥ Tom ♥



Photo by [Jose Llamas](#) on [Unsplash](#)



In the beginning...

Catalogue of Various Clinical Examinations

- ? mandatory.
- ? clinical criteria
- ? sign-off.
- ? Data Dependency to various audits etc.
- ? Business logic details.
- ? Clinical Decision Support.
- ? compliant with:
 - legal.
 - professional.
 - RCN - 2019
 - GDPR codes.
 - HCRP
 - I.C.
 - patient safety
 - etc
- ? spec. for protocolised templates

ARCHETYPES!

All below are F.T.

- Respiratory Rate.
- Breath Sounds.

Abdominal System

- Jaundice Y/N [F.T.]
- Organo megalia Y/N [F.T.]
- Any Abnormal masses palpated Y/N if Y -> [F.T.]
- other

Eye System

- Visual Acuity
 - ? use orthoptists work
- Pin Hole
 - ? oo above.
- Funduscopy [F.T.]

Cranial Nerves [F.T.]

? Other Examinations

1) Blood pressure

- site [F.T.]
- position [F.T.]
- ? list - sitting - standing - lying.
- cuff type / size.
- machine used.

values sys [Numeric] dias [Numeric]

! record Date.

! maximum 2 present text historic values.

2) Pulse

Site: Radial, Brachial, other.

Comments [F.T.]

3) J.V.P.

values: within range, Abnormal.

[F.T.]

4) Heart Sounds

values: normal, Abnormal.

5) Murmurs

Further Nerve Sys of Lower Limbs, L&R

- Sensation.
- Bulk.
- Tone.
- Strength.
- Proprioception
- Co-ordination
- Reflexes.

Same for 2 L upper Limbs

- Triceps

- Biceps

- Supinator

user to access/update about (each) as required! To be free text.

4) Vascular Assessment of Feet L&R

4a. Pulse

@ PT.

@ DP

@ popliteal.

@ Femoral

@ other

Values: one of the following: present, Diminished, Absent, Not tested.

4b. Capillary Refill

site [F.T.]

Value: within normal or range, Abnormal.

Foot Assessment

1) General Appearance

Free text.

include info on: structure, colour, warmth, any previous amputation, scars, wound/ulcers, bandage.

2) Peripheral nervous system

2a 10g monofilament @ L & R / foot

Values - 1) Normal, 2) Abnormal, 3) Diminished

if 3 -> where.

1st / 3rd / 5th MTP

user to be able to select one or more from above.

+ free text comments [F.T.]

2b Vibration

@ 1st Toe.

@ ankle.

@ knee

+ comments [F.T.]

Values: Absent or present.

1) to be mandatory

2) to be updated @ each MI by

2) Current Medication List *

- ? what is current
- ? repeat
- ? previous

3) Allergies & intolerance *

4) Past Medical History *

- ? what's past
- ? how recent
- ? Active / inactive

5) Diabetic Complications

6) Family History -> res

7) Social History

- Smoking: Y / N / Ex - [Numeric]
- Alcohol: Y / N if Yes
- Driving: Y / N if Yes
- Prenatal Counselling: Y / N

8) ...

9) ...

10) ...

TEMPLATE

Standards: Easy, right?



Customer



Vendors

Mapping
Transforms
Reference Data
ENGINEERING!

Standards: Easy, right?



Customer



Vendors



Standards: Easy, right?



Customer



Vendors

Standards: Easy, right?

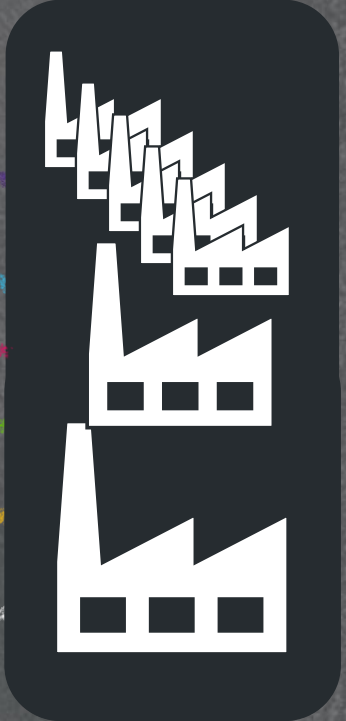
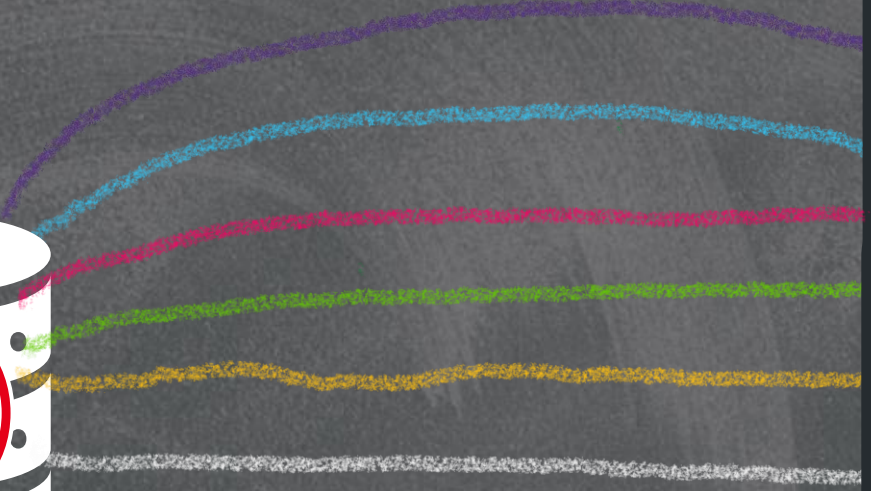


Customer



Vendors

Standards: Easy, right?



Customer

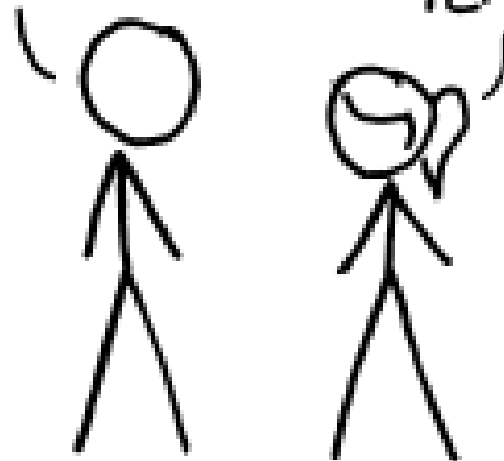


HOW STANDARDS PROLIFERATE:

(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.



SOON:

SITUATION:
THERE ARE
15 COMPETING
STANDARDS.

Standards:

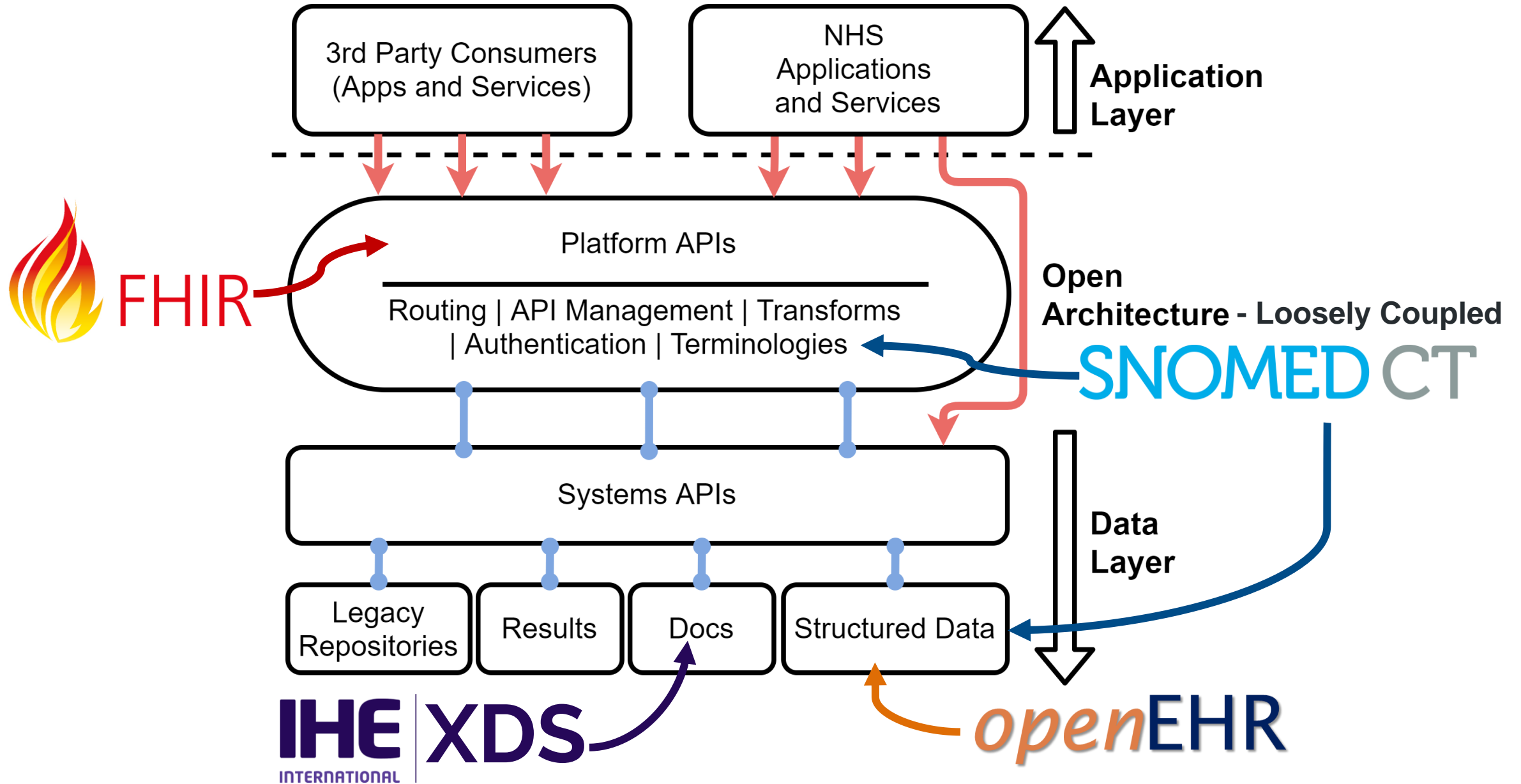


CLINICAL
DATA
STANDARD



PERSISTENCE

Separation of apps and data



Digital Maturity

The image features a dark gray background. In the center, the words "Digital" and "Maturity" are written in a large, white, serif font, stacked vertically. Behind the text is a silhouette of an evolutionary sequence. From left to right, it shows an ape-like creature on all fours, a more upright hominid, a modern human walking, a human holding a tablet, and finally, a human sitting in a chair using a laptop. The text is overlaid on this sequence, with "Digital" positioned above the walking and tablet-holding figures, and "Maturity" positioned below them.



Source: <https://flic.kr/p/aV1ysz> CC by 2.0



HL7[®] FHIR

OpenHHR

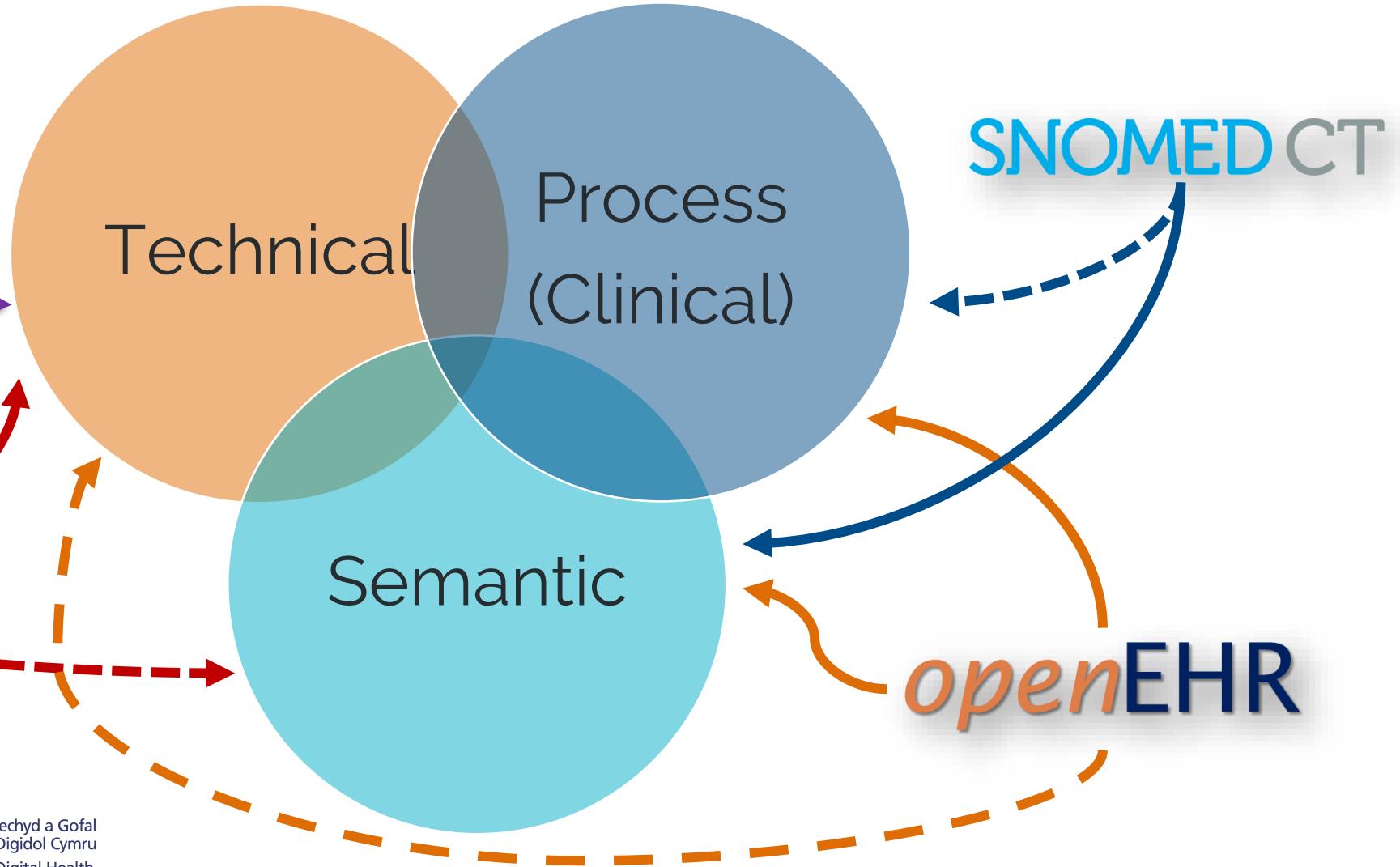
RESOURCE = ARCHETYPE

PROFILE = TEMPLATE

Standards Supporting Macro-Scale Interoperability

IHE
INTERNATIONAL
XDS

Integrating
the Healthcare
Enterprise



The FOXS Stack = Open Architecture



FHIR 

*open*EHR

XDS IHE | Integrating
INTERNATIONAL the Healthcare
Enterprise

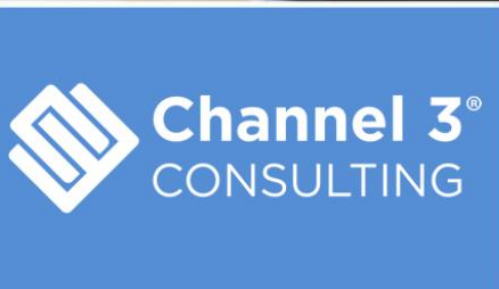
SNOMED CT



Digital Architecture Review

Final Report

March 2019 FINAL



The recommended architectural steps

The prize of a world-class enabled health and social care system in Wales is within reach, but it cannot be achieved without a change in approach, focus and energy.



Digital architecture

3-9 months

- 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

1-2 years

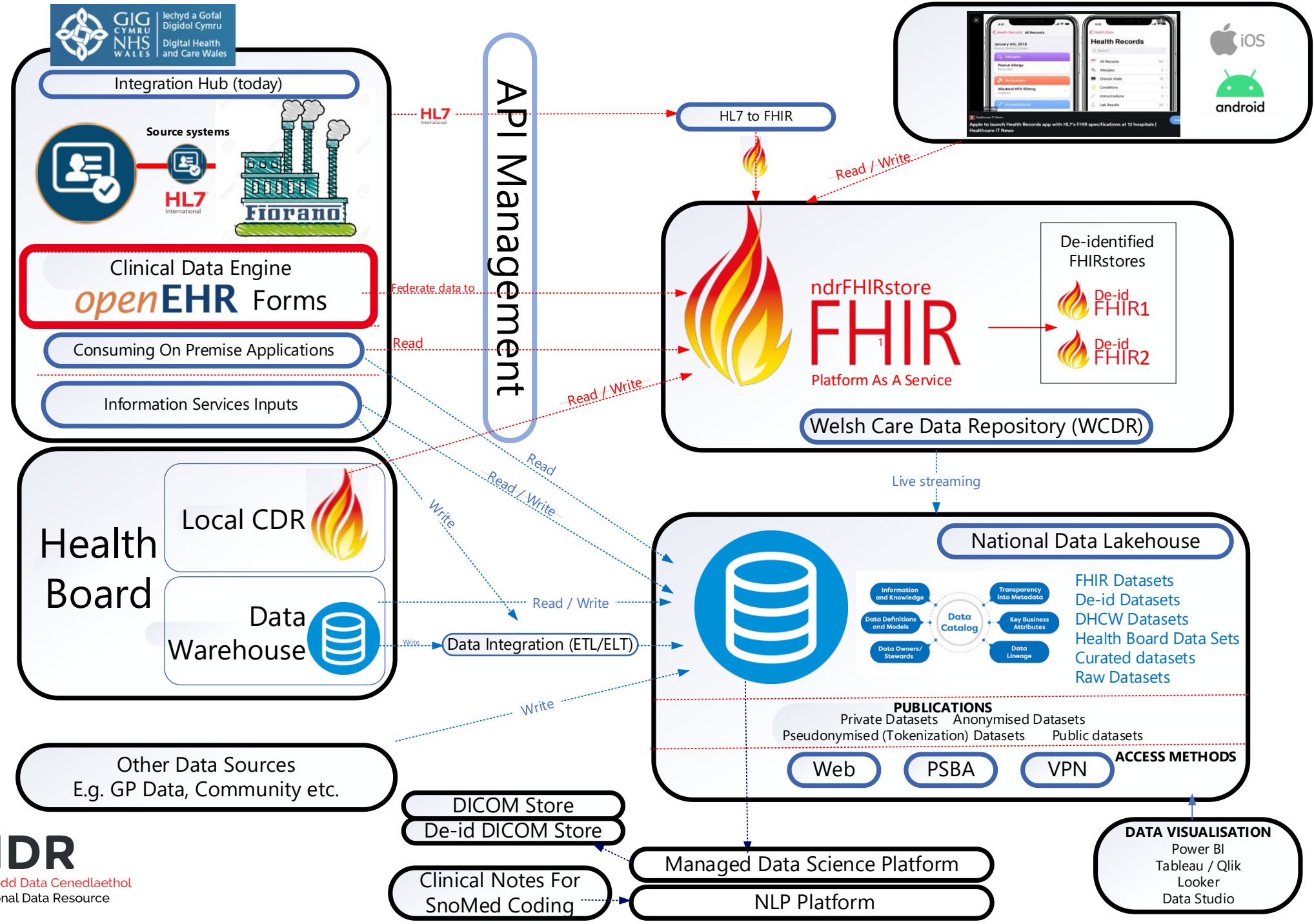
- Enhance the NHS Wales EMPI along open principles to facilitate a more developed Patient/Citizen engagement strategy.
- Enhance the NHS Wales Integration and Interaction Engine to provide a truly open platform for NHS Wales.
- Focus the work of the National Data Resource (NDR) programme on the creation 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

2-3 years

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



Danke fürs Zuhören!*



John.Meredith@wales.nhs.uk



[@johnmeredith](https://twitter.com/johnmeredith)

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