



Enterprise Architecture

TOGAF® Standard v10.2 · Architecture Development Method

BUILD	B-525 · v8.8
REGISTRY	615 entries · 408 routes · 571 live
CONFORMANCE	ISO/IEC/IEEE 42010:2011
SOURCE	Generated from the platform registry

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commvita is **not** a medical device. The platform presents recorded information and supports decisions; clinical decisions remain with the clinician.



P

Preliminary Phase

Establishing the architecture capability, its principles and its governance

Architecture Principles

Governance Framework

Architecture Repository

Scope. commvita is a **global health platform factory**, not a customised health IT product. 615 modules (571 live at build B-525) span primary care, community, mental health, social care, acute and governance across 16 configured jurisdictions, on one record and one codebase. Every architectural decision is evaluated against the factory distinction: variance is modelled and versioned, never forked into local code.

THE SIX DOCTRINES

#	DOCTRINE	WHAT IT FORBIDS
1	Everything variable must be modelled	Hard-coded country logic, SQL-embedded KPIs, payment rules in application code
2	Everything changeable must be versioned	Unversioned configs, undocumented rule changes, manual database edits
3	Everything releasable must be testable automatically	Untestable workflows, hand-waived compliance evidence, "it worked in staging" sign-offs
4	Everything safety- or compliance-relevant must be traceable	Unlinked hazard mitigations, unrecorded clinical rule changes, anonymous overrides
5	Humans review exceptions, not run the machine	Manual deployments, manual evidence packs, hand-crafted release notes
6	Local flexibility must never become local code	Tenant-specific branches, schema overrides, one-off patches to tenant production

ARCHITECTURE PRINCIPLES IN FORCE

- › **Person first** — no orphaned representations; every record resolves to a person
- › **Open by default** — openEHR archetypes, FHIR R4, SNOMED CT, OMOP; open exit
- › **Configuration over code** — jurisdiction variance is data, not a branch
- › **Fail safe** — a missing or expired value never defaults to another jurisdiction
- › **Evidence by construction** — assurance artefacts generated, not assembled
- › **Removable partners** — every partner integration behind one flagged seam

GOVERNANCE BODIES AND INSTRUMENTS

- › Clinical Safety Officer — DCB0129 / DCB0160 hazard and safety case sign-off
- › Caldicott Guardian — non-direct-care access decisions, written to the WORM audit
- › Change Advisory Board — Ring 3 (regulated) promotion approval
- › Jurisdiction accountable signatory — per-domain sign-off in the Jurisdiction Profile
- › Architecture Decision Records — append-only, versioned in the repository
- › Assurance Dashboard — ring readiness surfaced as a product capability

⚠ **Anti-patterns explicitly banned:** country-specific code branches; tenant-specific schema changes; hard-coded KPI logic in SQL; compliance logic buried in application code; local UI labels in source; manual production deployment; manual evidence packs; shared super-admin accounts without separation of duties; urgent one-off fixes applied directly to tenant production.



R

Requirements Management

The continuous process at the centre of the ADM cycle — every phase reads from and writes to it

Requirements Repository

Traceability Matrix

Standards Register

🔄 Requirements Management is not a phase; it is the hub every phase touches. In commvita the requirements repository is the set of governing PRDs and binding standards held in the repository alongside the code, so a requirement, its implementation and its test are versioned together.

INSTRUMENT	GOVERNS	BINDING ON
Person-First Data Lineage & Drill-Through Standard	Dropdown binding, tile drill-through, person identity banners, reconciliation of counts	All new and modified UI
Jurisdiction Profile PRD	Identifier validation, terminology binding, workflow gating, residency, legal provisions	All jurisdiction-variant behaviour
Incident-to-Risk Golden Thread PRD	Event → Theme → Systemic Issue → Risk → Board objective, with evidence carried	Incident, risk, board and quality modules
Clickable-Tile-by-Default standing order	Every count tile drills to exactly the set it counts	All new and modified UI
Partner-Integration Removability standing order	One enablement switch, isolated block, normalised adapter, documented excision cost	All partner-specific functionality
Simplify-UX programme flag	A single reversible seam; flag off restores prior behaviour exactly	End-user navigation and home surfaces

TRACEABILITY CHAIN

- › Requirement recorded in a governing PRD or standard
- › Acceptance criterion expressed as an automated test
- › Implementation referenced to the criterion in the commit
- › Hazard linked where clinically relevant (DCB0129)
- › Audit register entry updated in the same commit
- › Evidence pack assembled automatically at release

LIVING AUDIT REGISTERS

- › Standard audit register — person-first conformance, Phase 2
- › Jurisdiction audit register — retrospective hardcoding removal

- › Tile-clickability audit register — drill-through retrofit
- › FDP CDM alignment register — canonical model gaps
- › Hazard log — DCB0129 hazards and mitigations
- › Architecture decision records — this document, section ADR

A

Architecture Vision

The high-level aspirational view of the target enterprise architecture

Statement of Architecture Work

Value Chain

Architecture Vision



Vision. One open longitudinal record carrying clinical, operational and governance data for a whole population, self-hosted by the organisation that owns the data, on openEHR, FHIR R4 and SNOMED CT. Every surface — from a nurse on a home visit to a board assurance framework — reads and writes that same record in real time, so the integration burden that normally falls on people is removed rather than automated.

STRATEGIC DRIVERS

- › NHS 10 Year Plan — the digital, community and prevention shifts
- › Mandated consolidation and post-EPR optimisation
- › National data platform first-term decision point
- › Commissioner reorganisation — 42 ICBs to 36 from 1 April 2026, with a stated intent to align boundaries with the new strategic authorities
- › Gulf health transformation programmes at national scale
- › EHDS and WHO digital health guidance for cross-border care

OUTCOMES, IN QUADRUPLE AIM TERMS

- › **Outcomes** — intervention chosen on the whole record, not a fragment
- › **Access and equality** — need visible by cohort and deprivation
- › **Value for money** — ambition of 80% off total cost of ownership
- › **Workforce** — one record, one login, one worklist
- › Real-time decision support rather than retrospective reporting
- › Assurance generated from live operations, not re-keyed

ARCHITECTURE GOALS

- › openEHR as the canonical clinical record, not a bolt-on
- › FHIR R4 UK Core conformant API surface
- › OMOP CDM v5.4 for secondary use, with a real populated ETL
- › NHS FDP Canonical Data Model (DAPB4121) interoperability
- › Jurisdiction variance modelled in a signed, versioned profile



> Open exit — portability as a designed property

COMMERCIAL ARCHITECTURE — THREE EDITIONS ON ONE PLATFORM

EDITION	BASIS OF CHARGE	ARCHITECTURAL SCOPE
Commvita Flow Edition	£1 per instance, perpetual	Self-hosted platform base on open standards, with FDP-parity operational products
Governance & Assurance	Per employee, banded by size	Board, risk, incident, IG and AI governance. Holds no patient records, so no clinical certification gate and no integration programme
Population Platform	Per head of covered population	The full clinical platform, governance included for the same scope, no double charge

 **Why the editions matter architecturally:** Governance & Assurance is deliberately separable — it consumes the same spine but stores no patient identifiable data, which is what allows it to be deployed inside one financial year while the clinical platform follows on its own assurance timetable.

B

Business Architecture

Organisation model, capabilities, value streams and information flows

Business Capability Model

Organisation Model

Value Streams

⚠ **A simple hierarchy fails.** Health systems are not uniformly tree-shaped: the United States runs payers in parallel rather than stacked, Crown Dependencies subsidise private primary care they do not own, and Kenya devolves to counties. The organisation model is therefore four typed layers plus an independent referral pathway, not a single parent-child chain.

FOUR-LAYER ORGANISATION MODEL

LAYER	ROLE	WORKED EXAMPLES
STEWARDSHIP	Sets policy, legally accountable, stewards resource	England: DHSC → NHS regions · US: HHS / CMS with states · Oman: Ministry of Health
COMMISSIONER	Plans, funds and contracts for services	England: 36 ICBs from 1 April 2026, boundaries expected to align with strategic authorities · US: Medicare, Medicaid and commercial in parallel · Kenya: 47 county health departments
PROVIDER	Delivers secondary and tertiary care	England: trusts and foundation trusts · US: hospitals, IDNs, ACOs · Caribbean: national medical centres and hospital boards
PRIMARY_CARE	The front door for patients	England: GP practices in PCNs · US: PCPs and FQHCs · Crown Dependencies: subsidised private practices · Kenya: community health services

🔄 **The layers are stable; the occupants are not.** England has replaced its commissioning tier twice in a decade — 211 clinical commissioning groups in 2013, 106 by 2021, 42 integrated care boards in 2022, 36 from April 2026 — with a stated intent to align boundaries with the new strategic authorities, and its national arm's-length body is being wound into the department. Every one of those is a change of *instances* at the COMMISSIONER layer. None is a change to the layer model. That is the architectural claim this phase makes: the typed four-layer model, plus organisational structure held as effective-dated configuration rather than as schema, is what allows a reorganisation to be a data migration of hours rather than a programme of years. An enterprise architecture that has to be redrawn every time a commissioner merges is not an architecture.

BUSINESS CAPABILITIES — THE FIVE LAYERS OF THE MAP

- › **People-facing** — portal, referral and access, pre-hospital, front door
- › **Care delivery** — clinical core, community, mental health and social care, allied health, condition programmes
- › **The spine** — person and record, interoperability and EPR

- › **Running the organisation** — flow, governance, board, workforce, analytics, finance
- › **Shared services** — platform and AI, communications, jurisdiction and config

VALUE STREAMS

- › Access → triage → care → outcome (person journey)
- › Referral → diagnostics → decision to treat → theatre → recovery
- › Arrival → assessment → admission → discharge to assess → community
- › Event → theme → systemic issue → risk → board objective
- › Cohort → phenotype → recall or social prescription → measured outcome
- › Policy → process → authority matrix → audited decision

Information Systems Architecture

Application portfolio, data architecture and clinical terminology binding

Application Portfolio

Data Architecture

Terminology Bindings



Portfolio. 615 modules in the registry, 571 live at build B-525; the remainder await external credentials rather than development. One React front end and one FastAPI service over a single PostgreSQL logical model — deliberately not a suite of acquisitions, which is why every module can read the same record without an exchange step.

DATA ARCHITECTURE — FOUR REPRESENTATIONS OF ONE RECORD

REPRESENTATION	PURPOSE	STANDARD
Canonical clinical record	The record of care as authored	openEHR archetypes and templates
Interoperability projection	Exchange with EPRs and national services	FHIR R4 UK Core, HL7 v2 where required
Analytical projection	Secondary use, research, federated cohorts	OMOP CDM v5.4, materialised by a real ETL with a data-quality report
National platform projection	Operational analytics parity	NHS FDP Canonical Data Model, DAPB4121, schema-validated on emit

TERMINOLOGY AND CODING

- › SNOMED CT UK Edition, weekly dm+d, OPCS-4, ICD-10 via NHS TRUD
- › FHIR R4 terminology server proxy, local or live mode
- › LOINC for measurement, RxNorm for cross-border medication
- › Read v2 and CTV3 crosswalk with an unmapped-code queue
- › Versioned SNOMED refsets, bound only against a TRUD release
- › Jurisdiction terminology binding read from the profile

IDENTITY AND ACCESS

- › EMPI with multi-identifier search and probabilistic matching
- › Per-jurisdiction identifier schemes; unknown schemes fail safe
- › Role hierarchy of seven roles, org-scoped by ODS code
- › Groups grant scope only, never a role (ADR-015)
- › Article 9 step-up re-authentication for special category data



- › Tamper-evident hash-chained login and access audit



Technology Architecture

Platform, deployment topology, control and data plane separation, non-functional requirements

- Technology Standards
- Deployment Topology
- Non-Functional Requirements

TECHNOLOGY CHOICES, CURRENT AND TARGET

LAYER	CURRENT	TARGET, 12 TO 18 MONTHS
Frontend	React 18, Vite, TypeScript, Fluent UI v9	Same, plus PWA for offline and mobile
Backend	FastAPI, SQLAlchemy 2.0	FastAPI modularised by domain
Database	PostgreSQL 15	PostgreSQL per cell with read replicas
Events	Synchronous only	Kafka or Redpanda event backbone
Search	PostgreSQL full text	OpenSearch
Policy engine	In-application	Open Policy Agent sidecar
Secrets	Environment injection	Vault or Key Vault with rotation
Observability	Application logging	OpenTelemetry to Grafana and Jaeger
Infrastructure as code	Helm and Ansible	Terraform, Helm, ArgoCD
CI/CD	GitHub Actions to GHCR, Helm, Flux	Same, plus ring promotion bots

CONTROL PLANE — CENTRAL, SINGLE INSTANCE

- › Platform administration and tenancy provisioning
- › Release orchestration: ring promotion and rollback
- › Policy enforcement and pack registry, signed artefacts
- › Feature flags per jurisdiction, tenant and role
- › Observability aggregation across all cells
- › Security control management, secret and certificate rotation

DATA PLANE — PER CELL

- › Runtime API services and local integration adapters
- › Local data store honouring jurisdiction residency
- › Local configuration cache and search index
- › Local dashboards



- › Cells bound blast radius, not just capacity
- › No cross-cell patient data movement by default



Cell topology. Cells are drawn on residency and regulatory boundaries: NHS nations in one production cell, Crown Dependencies in another, CMS and ACO customers in a third, Gulf ministries in sovereign in-country cells. Data residency is a deployment property, not an application concern.

NON-FUNCTIONAL REQUIREMENTS

REQUIREMENT	TARGET	VERIFIED BY
API latency	p95 ≤ 200ms, or within 10% of baseline	k6 performance gate on every promotion
Error rate	≤ 0.1% with no new alert categories	Observability baseline in the promotion gate
Availability	Per-cell, service-level dependent	Synthetic probes and integration assurance
Offline operation	Community and mobile surfaces fully usable	IndexedDB queue and sync manager
Security findings	No critical or high at promotion	SAST, DAST and dependency scanning
Residency	No schema migration that moves data across a cell	Migration dry-run in the gate

E

Opportunities & Solutions

Work packages, solution building blocks and implementation priorities

Solution Building Blocks

Work Packages

Gap Analysis

EPIC STATUS AGAINST THE TARGET ARCHITECTURE

EPIC	SCOPE	STATUS
US revenue capture	CCM, BHI, TCM, PCM, AWV, RPM, RTM, HCC and RAF, STAR	Complete
Platform architecture	Packs, rings, control plane, assurance dashboard	Complete
Clinical depth	Condition programmes, AHP, maternity, sexual health, genomics	Substantially complete
Privacy enhancing technology	Anonymisation tiers, token vault, differential privacy	Built
Clinical studies platform	Cohorts, OMOP ETL, extract ledger, evidence pack	Built
International expansion	Beyond the configured jurisdictions	In progress
Infrastructure programme	Events, cache, OPA, Vault, OpenTelemetry, per-cell databases	Not started
HIMSS maturity intelligence	CCMM, AMAM and O-EMRAM computed from live signals	Partially built

SOLUTION BUILDING BLOCKS — REUSABLE ACROSS MODULES

- › Person and record spine (EMPI, whole person record)
- › Jurisdiction Profile resolver with nearest-wins inheritance
- › Golden thread promotion engine with evidence carriage
- › commvita Sign — signature ceremony and WORM audit chain
- › Communications CRM — one logging helper for every channel
- › AI provider seam — single active provider, server-side keys
- › Partner adapter contract — normalised, partner-agnostic
- › Notification writer — one helper for in-app alerts

PRINCIPAL GAPS TO CLOSE

- › Event backbone — currently synchronous only

- › Policy engine externalisation to OPA
- › Per-cell database separation for residency at scale
- › Distributed tracing and unified observability
- › Secret management with automated rotation
- › Terraform and ArgoCD to complete the IaC chain
- › Clinical outcome evidence at scale — needs live deployments

F

Migration Planning

Transition states, sequencing and the release ring model

Implementation Roadmap

Transition Architecture

Migration Plan

ENVIRONMENT CHAIN

Core Dev → Core Test → Core Prod Candidate
↳ Jurisdiction Test → Tenant Test → Tenant Prod

RELEASE RINGS

RING	POPULATION	PROMOTION GATE
0 — Internal	commvita engineering only	Merge to a feature branch passes CI
1 — Canary	One or two opted-in pilot tenants per jurisdiction	24 hour soak against an observability baseline
2 — Standard	All non-regulated jurisdictions	72 hour soak with no P1 alerts
3 — Regulated	NHS, CMS and MHRA-registered deployments	Extended soak, clinical safety sign-off, change advisory board approval

⚠ **Ring 3 is the only gate a human holds.** Promotion is automated unless a change is flagged safety-relevant, in which case the clinical safety officer signs before it can reach a regulated deployment. This is doctrine 5 in practice: humans review exceptions, they do not run the machine.

TRANSITION SEQUENCE FOR A NEW JURISDICTION

- › Jurisdiction Profile authored, sourced and effective-dated
- › Mandatory domains signed off by a named local signatory
- › Identifier scheme and terminology binding validated
- › Pack composed, conflicts and gaps detected and cleared
- › Ring 1 canary with a single pilot tenant
- › Ring 2 or Ring 3 depending on regulatory status

ROLLBACK AND SAFETY

- › Emergency rollback is a control plane action, not a redeploy
- › Feature flags kill a capability without a release
- › Kill switches scoped global, jurisdiction or tenant



- › Pack versions are semver and signed; provenance verified on load
- › Schema migrations are dry-run against residency rules first
- › No forward-only migration without a tested down path

**G**

Implementation Governance

Assurance, clinical safety and the gates that hold the architecture to the specification

Architecture Contract

Compliance Assessment

Assurance Framework

✓ **Absent from the previous edition.** Phase G is where the doctrines become enforceable. Assurance runs as six automated domains, and the promotion gate is the architecture contract in executable form — a change that cannot satisfy it cannot reach a regulated deployment.

SIX ASSURANCE DOMAINS

DOMAIN	COVERS
A. Functional	Unit, integration, consumer-driven API contract, workflow regression, UI journey, per-pack regression
B. Non-functional	Performance and load, resilience and failover, soak, capacity envelope
C. Security	SAST, DAST, dependency and container scanning, secret detection, RBAC assertion tests
D. Clinical safety	DCB0129 hazard traceability, DCB0160 deployment safety, clinical simulation scenarios
E. Information governance	Residency assertions, opt-out enforcement, audit chain verification, Article 9 step-up
F. Conformance	FHIR profile validation, openEHR template validation, OMOP data quality, FDP CDM schema conformance

PROMOTION GATE — EVERY ITEM AUTOMATED

- › Unit, integration and API contract tests pass
- › UI journey tests pass
- › FHIR profile validation passes
- › p95 API latency within budget
- › No critical or high security findings
- › Data residency respected in migration dry-run
- › Jurisdiction pack compatibility confirmed
- › Observability baseline held
- › Pack provenance signature valid

CLINICAL SAFETY GOVERNANCE

- › Hazard log with DCB0129 hazard identifiers and mitigations
- › Safety case report assembled from live hazard state
- › DCB0160 deployment workflow per receiving organisation
- › Clinical safety officer sign-off routed through commvita Sign
- › AI governance: ATRS model cards, NICE ESF tier, MHRA AlaMD status
- › GDPR Article 22 override log for any automated decision support

 **Non-SaMD posture.** Decision support surfaces recorded data and computed indicators for a human to act on. Where a capability would cross into a medical device function, it is either scoped out or carries an explicit MHRA AlaMD assessment. This boundary is asserted per module and reviewed at Ring 3.

H

Architecture Change Management

How the architecture absorbs change without forking, and when a change triggers a new ADM cycle

Change Request Log

Pack Lifecycle

Architecture Repository



Absent from the previous edition. Phase H answers the question the factory model depends on: when a jurisdiction, tenant or regulator wants something different, what changes? The answer must never be a branch.

CHANGE CLASSIFICATION

CLASS	EXAMPLE	ROUTE	TRIGGERS A NEW ADM CYCLE?
Configuration	A threshold, a label, a service catalogue entry	Tenant layer, no release	No
Jurisdiction variance	An identifier scheme, a legal provision, a regulator	Jurisdiction Profile entry, sourced and signed off	No
Pack change	A new pathway, a terminology subset, a return format	Versioned pack, semver, signed, ring promoted	No
Capability extension	A new module inside an existing theme	Registry entry, nav wiring, audit register update, same commit	No
Structural change	A new representation of the record, a new plane	Architecture decision record, then phases B to D	Yes
Regulatory shift	A new device classification, a new national data regime	Vision reassessed, safety case reopened	Yes

PACK LIFECYCLE

- › Authored against the pack schema with required provenance fields
- › Validated: schema, terminology binding, conflict and gap detection
- › Signed and published to the registry with a semver version
- › Ring promoted like code, with per-pack regression tests
- › Superseded rather than edited — versions are immutable
- › Deprecation carries an effective date and a migration path

REPOSITORY AND VERSIONING DISCIPLINE

- › Configuration as code, held beside the implementation

- › Policy as code, evaluated rather than interpreted
- › Append-only audit chains, verified on read, no update or delete path
- › Architecture decision records are additive, never rewritten
- › Module registry and this document updated in the same commit as the change
- › Build label is the single source of version truth



Architecture Decision Records

Decisions taken, the rationale, and what was rejected

- Decision Log
- Rationale
- Alternatives Considered

ID	DECISION	RATIONALE	REJECTED ALTERNATIVE
ADR-001	openEHR as the canonical clinical record	Vendor-neutral archetypes make the record portable by construction, which is what makes an open exit credible rather than rhetorical	FHIR resources as the system of record — adequate for exchange, weak as a longitudinal store
ADR-002	One codebase, jurisdiction variance as data	A branch per country multiplies assurance cost by the number of countries and guarantees drift	Per-jurisdiction forks with shared libraries
ADR-003	Single FastAPI service over one logical model	At current scale the coupling cost of microservices exceeds the benefit; module boundaries are enforced by convention and test, not by network	Microservice-per-domain from the outset
ADR-004	Control plane and data plane separated	Residency and blast radius are deployment properties; keeping orchestration central lets cells stay sovereign without duplicating governance	Fully independent per-country deployments with no central plane
ADR-005	Append-only hash-chained audit for governance records	Tamper evidence must be verifiable by the reader, not asserted by the vendor; chains are re-verified on every read	Conventional audit tables with administrative delete
ADR-006	OMOP as a materialised ETL, not a view	Research use needs a stable, quality-reported extract with a provenance ledger, not a live query surface	On-demand OMOP projection over the operational store
ADR-015	User groups grant scope only, never a role	Coupling group membership to privilege creates silent elevation paths; role stays explicit and audited	Groups carrying role assignments, as most RBAC products do
ADR-016	Partner integrations behind a single flagged seam	A partnership ending must be a configuration change and a deletion, not a refactor	Partner logic woven into the modules that consume it
ADR-017	One AI provider seam with server-side keys only	Browser-held keys cannot be governed; a single active provider makes the audit answerable	Per-feature provider configuration with client-side credentials

RISK

Architecture Risk Register

Identified architecture risks, exposure and mitigation

- Risk Register
- Impact Assessment
- Mitigations

ID	RISK	IMPACT	LIKELIHOOD	MITIGATION
AR-01	Single-service backend becomes a scaling and change bottleneck	High	Medium	Domain modularisation on the roadmap; module boundaries already enforced by test
AR-02	No event backbone — cross-module reaction is synchronous	Medium	High	Kafka or Redpanda in the infrastructure epic; notification writer already abstracts delivery
AR-03	Clinical outcome evidence is not yet available at scale	High	High	Explicitly not claimed. Ring 1 canary deployments are the route; assurance dashboard tracks readiness
AR-04	Jurisdiction profile incompleteness blocks deployability	Medium	Medium	Fail-safe by design — unsigned mandatory domains block go-live rather than defaulting
AR-05	Secret management is environment-injected, not vaulted	High	Medium	Vault or Key Vault with rotation in the infrastructure epic; keys never reach the browser today
AR-06	Observability gaps slow incident diagnosis across cells	Medium	Medium	OpenTelemetry to Grafana and Jaeger; control plane already aggregates
AR-07	Regulatory reclassification of a decision-support capability	High	Low	Non-SaMD boundary asserted per module and reviewed at Ring 3; AlaMD assessment where borderline
AR-08	Partner dependency becomes structural despite the seam	Low	Low	Removability is a standing order with a documented excision cost per partner
AR-09	Documentation drift between the registry, this document and the code	Medium	High	Same-commit rule for registry and audit registers; this document is generated, not hand-maintained

INTEROPERABILITY AND TERMINOLOGY

- › openEHR — archetypes and templates
- › HL7 FHIR R4, UK Core profiles
- › HL7 v2.x ADT and ORU
- › SNOMED CT UK Edition, dm+d, OPCS-4, ICD-10
- › LOINC, RxNorm
- › OMOP CDM v5.4, OHDSI conventions
- › NHS FDP Canonical Data Model, DAPB4121
- › IHE PIX, PDQ, XDS, MHD, ATNA, BPPC
- › NHS e-RS, GP Connect, NRL v3, MESH, BaRS
- › TEFCA v1.1, US Core v6, SMART Backend Services

CLINICAL SAFETY, QUALITY AND AI

- › DCB0129 — manufacturer clinical risk management
- › DCB0160 — deploying organisation clinical risk
- › DTAC 2021
- › MHRA AlaMD guidance, June 2025
- › NICE Evidence Standards Framework, tiers A to C
- › ATRS — algorithmic transparency records
- › NHS AI Ethics Framework
- › PSIRF, CQC Single Assessment Framework
- › NQB safe staffing, NICE NG94
- › HIMSS CCMM, AMAM, O-EMRAM

INFORMATION GOVERNANCE AND SECURITY

- › UK GDPR, Articles 5, 6, 9, 15, 22, 26, 30, 32, 89
- › Caldicott Principles, all eight

- › National Data Opt-Out
- › DSPT 2024/25
- › Cyber Essentials Plus, ISO 27001 Annex A
- › NCSC Cloud Security Principles
- › ISO/IEC/IEEE 42010:2011 — architecture description
- › Data (Use and Access) Act 2025
- › EHDS, Regulation (EU) 2024/2987
- › HIPAA, ONC HTI-1, CMS-9115-F and CMS-0057-F

① **Jurisdiction-specific instruments** — electronic signature law, background-check schemes, professional registers, care regulators and billing regimes — are not listed here. They are resolved at runtime from the Jurisdiction Profile, which is the point: a standard that varies by country is data, not documentation.



Architecture Views

The layered view, the ADM cycle and the deployment topology

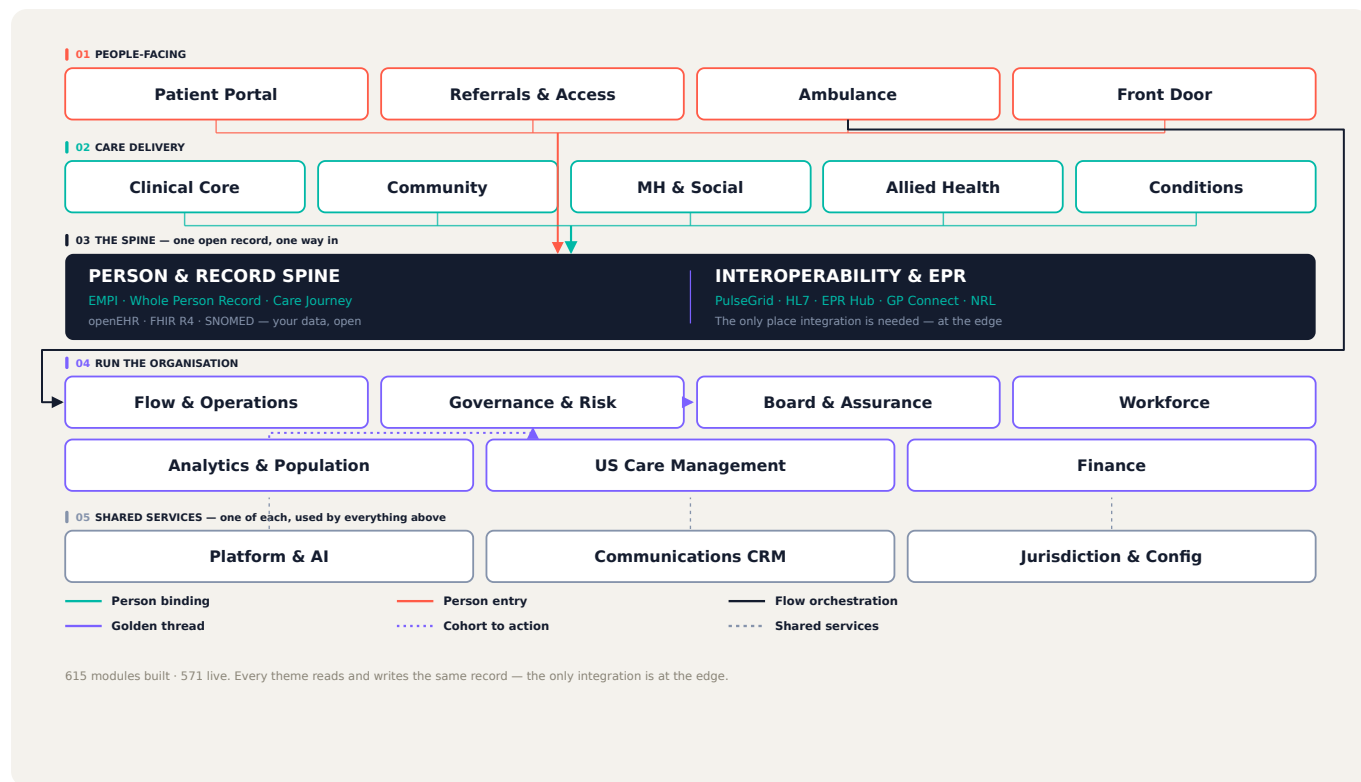
Layered View

ADM Cycle

Deployment View

LAYERED ARCHITECTURE — FIVE LAYERS BINDING TO ONE SPINE

Application & Data View



TOGAF ADM CYCLE AS OPERATED

Process View

Preliminary — capability, principles, governance

- ↳ A Vision → B Business → C Information Systems → D Technology
- ↳ E Opportunities → F Migration → G Governance → H Change
- ↳ Requirements Management sits at the centre, touched by every phase

A structural change or a regulatory shift re-enters at Phase B.

Everything else is absorbed as configuration, profile or pack.

DEPLOYMENT TOPOLOGY — CONTROL PLANE AND CELLS

Technology View

CONTROL PLANE (single instance)

release orchestration · pack registry · flags · policy · observability

DATA PLANE (per cell, residency-bound)

nhs-prod	NHS England, Scotland, Wales, Northern Ireland
cd-prod	Crown Dependencies
us-cms-prod	CMS and ACO customers
gulf-sov	in-country sovereign, ministry deployments

No cross-cell patient data movement by default.