The Aurabox Maturity Model for Medical Imaging Interoperability

Executive Summary

The **Aurabox Maturity Model** provides a structured framework for healthcare organisations to assess and advance their capabilities in sharing medical imaging across institutional, technical, and jurisdictional boundaries. As patient care increasingly depends on timely access to comprehensive imaging records, the model identifies five progressive maturity levels across a set of core and enabling capabilities. This white paper describes each capability in detail, introduces additional dimensions to support implementation readiness, and outlines a scoring methodology to assist organisations in strategic planning.

Background and Context

Medical imaging plays a critical role in diagnosis, longitudinal monitoring, treatment planning, and multidisciplinary decision-making. However, in many healthcare environments, imaging remains fragmented across local PACS systems, is inaccessible to external providers, or is transferred via outdated and inefficient methods. This impedes both continuity of care and collaboration across provider boundaries.

Aurabox is designed to address these challenges through a secure, cloud-based, standards-compliant interoperability platform. The maturity model reflects the stages of transformation from isolated, manual processes to standardised, real-time, interoperable imaging exchange.

Core Framework

The model evaluates maturity across five stages:

- **Foundation:** Basic capabilities exist, but processes are manual, fragmented, and uncoordinated.
- **Coordination:** Some structured workflows exist; access is limited or inconsistent across systems.
- **Collaboration:** Processes are shared across departments and institutions, with semi-automated exchange.

- **Integration:** Real-time interoperability is achieved through APIs and standards-based systems.
- **Standardisation:** Best practices are institutionalised; systems are policy-aligned, interoperable, and auditable.

These levels are applied to the following capabilities:

1. Discovery

The ability for internal and external users to locate imaging studies:

- **0:** Imaging is isolated and manually indexed.
- **4:** Imaging is discoverable in real time via APIs, using standardised metadata.

2. Retrieval

The ability to retrieve imaging efficiently:

- **0:** Imaging must be requested manually; turnaround >24 hrs.
- **4:** On-demand retrieval across organisations with no manual intervention.

3. Sharing

The mechanisms for sharing imaging externally:

- **0:** Ad hoc exports (e.g. CD, USB) with fax/email request workflows.
- **4:** Imaging can be shared in real-time across trusted networks using policy-driven protocols.

4. Consent

How consent for imaging access is handled:

- **0:** No structured process for capturing or enforcing consent.
- **4:** Consent is automated, queryable, and interoperable with third-party systems.

5. Identity

Validation of patient and provider identities:

- **0:** No verification performed; frequent mismatches.
- **4:** Identity is validated electronically and accepted from trusted third parties.

6. Patient Access

How patients access their data:

- **0:** No access;
- **4:** Patients have full data portability

7. Compliance

Adherence to privacy and health information laws:

- **0:** No formal compliance regime.
- **4:** Certified against global standards (e.g. HIPAA, GDPR, ISO 27001) with monitoring and attestation.

Enabling Capabilities

Change Management Readiness

The capacity to implement and sustain workflow change:

- **0:** Change is reactive; staff are unaware until go-live.
- **4:** Shared governance and regional planning align changes across stakeholders.

Training and Workforce Capability

Readiness of internal and external users:

- **0:** No structured training; high support burden.
- **4:** Role-specific training programs and tracked learning outcomes.

Data Governance

Oversight of imaging data quality and lifecycle:

- **0:** No ownership or stewardship of shared data.
- **4:** Data lifecycle is defined and enforced with provenance, expiry, and duplication policies.

Scoring Model

Each capability is scored from 0–4:

- **0:** Foundation (non-existent or ad hoc)
- **1:** Coordination (fragmented but structured)
- **2:** Collaboration (interdepartmental consistency)
- **3:** Integration (system-to-system workflows)
- **4:** Standardisation (industry-aligned, scalable)

The final score defines the overall maturity tier:

- **0-10:** Reactive
- **11-20:** Formative
- **21-30:** Operationalising
- **31-40:** Leading Practice

Implementation Guidance

1. **Self-assessment:** Use the Aurabox Scoring Sheet to collect input from radiology, IT, clinical, and governance teams. Score each section based on the criteria.

2. **Gap analysis:** Identify low-scoring areas with high clinical or strategic impact.

3. **Stakeholder engagement:** Include PACS teams, referrers, external imaging providers, and IT leadership.

4. **Roadmap development:** Align capability uplift plans with business goals and vendor timelines.

5. **Continuous improvement:** Review maturity annually and after major system/process changes.

Conclusion

The Aurabox Maturity Model provides a comprehensive lens for healthcare organisations to assess and improve their imaging-sharing readiness. By considering not only technical interoperability but also governance, workforce, and operational capacity, the model supports a complete transformation toward patient-centred, interoperable imaging.

Organisations that advance through the maturity levels will be equipped to deliver safer, faster, and more collaborative care—while supporting compliance, research enablement, and innovation.